

Handle with
EXTREME CARE

This volume is damaged or brittle
and ***CANNOT*** be repaired!

- photocopy *only if necessary*
- return to staff
- *do not* put in bookdrop

Gerstein Science Information Centre


H.3
Y

UNIVERSITY OF TORONTO
DEPARTMENT OF PSYCHOLOGY

M.4

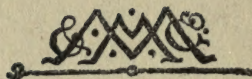
2

NOV 1 0 1920



Digitized by the Internet Archive
in 2008 with funding from
Microsoft Corporation

HYSTERICAL DISORDERS OF
WARFARE



MACMILLAN AND CO., LIMITED
LONDON . BOMBAY . CALCUTTA . MADRAS
MELBOURNE

THE MACMILLAN COMPANY
NEW YORK . BOSTON . CHICAGO
DALLAS . SAN FRANCISCO

THE MACMILLAN CO. OF CANADA, LTD.
TORONTO

HYSTERICAL DISORDERS OF WARFARE

BY
LEWIS R. YEALLAND, M.D.

*Resident Medical Officer, National Hospital for the Paralysed and Epileptic,
Queen Square, London.*

WITH PREFACE BY
E. FARQUHAR BUZZARD, M.D., F.R.C.P.
LIEUT.-COLONEL, R.A.M.C.



MACMILLAN AND CO., LIMITED
ST. MARTIN'S STREET, LONDON

1918

MN
Y

600038
21.1.55

COPYRIGHT



SEEN BY
PRESERVATION
SERVICES

DATE... *Dec 1955*

PREFACE

IN acceding to Dr. Yealland's request that I should write a short preface to this volume, I was influenced by a desire to lay before the reader some facts about the author and his methods of treatment which otherwise might be overlooked, and to emphasise certain deductions which may fairly be drawn from his experience.

Before taking up the post of Resident Medical Officer at the National Hospital two years ago, Dr. Yealland's interest in psychological problems had been aroused by a period of Asylum work in Canada. It was his wish to supplement this experience by a study of neurology, and he has certainly made the most of the opportunities afforded him in London for this purpose. At the same time the allotment of a number of beds in the Hospital to soldiers who were suffering from hysterical disorders made the question of how quickly these patients could be restored to health and usefulness a matter of urgency. He threw himself into the solution of this problem with characteristic energy, and soon realised that what may be called an intensive method of treatment gave better results than the more prolonged measures generally adopted.

His principle has been a straightforward one, and is based on the belief that a disorder originating in suggestion should yield to counter-suggestion, that the precise method of counter-suggestion is really immaterial so long as it is strong enough, and that the line of treatment must be varied according to the mental attitude of the patient. His success has proved that in skilful and determined hands the time-honoured employment of a faradic battery as an implement of suggestion is at least as efficacious as hypnosis or ether anæsthesia, and that resort to the latter alternatives, with their obvious disadvantages, is rarely, if ever, necessary.

It need scarcely be pointed out that this success does not depend on the implement, but on the personality of the medical man who employs it. The latter must possess sympathy, understanding, tact, imperturbable good temper and untiring determination, in addition to a sense of humour and the ability to meet unlooked for situations as they arise with ready decision.

It is not enough to know how to cure an hysterical disorder ; the question of when to apply the treatment is at least as important. Patients who have recently passed through a period of great strain and who show symptoms of exhaustion must be allowed a spell of rest before undergoing treatment if the latter is to give the best results. But, the decision having been made that the time for treatment has arrived, the task should be undertaken

with the determination to bring it to a successful issue at one sitting however much time may be required. An understanding with the patient on this point at the onset has often been found of value.

The following pages contain much of interest, but I venture to predict that their chief attraction will be found in the detailed accounts of what may be called the author's encounters with his patients—encounters which have ended with almost monotonous success to one side, but always with feelings of good will on both.

It may be asked whether the cure of an hysterical disorder by such methods as are here described is associated with benefit to the patient's mental outlook or by any effect, good or bad, on his psychopathic condition. Some critics will doubtless say that a more prolonged and a more reasoned re-education must produce a more beneficial and a more lasting effect. This must remain an open question for the present, but there seems no good evidence forthcoming to support the view that any therapeutic measures can alter the temperamental instability of these patients, and it is clear that the intensive method of treatment, in many cases at any rate, produces very welcome changes in their mental attitude coincident with the removal of their physical disabilities.

If the lessons herein contained are generally learned, we may hope to become less familiar with

the picture of a physician ordering faradism to an hysterical patient, with no further interest as to who applies the treatment or whether he or she understands the why or the wherefore of its application.

Should this war of nations serve no other good purpose, it must surely have stimulated a more universal and keener interest in psychotherapy, a department of medicine which has hitherto been sadly neglected if not purposely shunned. The functional disorders of the nervous system produced by war conditions are essentially the same as, though more numerous than, those met with in periods of peace, and it is time that steps for their sympathetic and scientific treatment, available for all classes of society, should be taken.

E. FARQUHAR BUZZARD.

78, Wimpole Street, W. 1.

AUTHOR'S PREFACE

THE number of hysterical patients admitted to the National Hospital, Queen Square, has materially increased subsequent to the appearance of an article in the *Lancet** by Captain E. D. Adrian and myself. Many inquiries by those interested in the subject have led to practical demonstrations of the treatment employed. My success in treating these cases, together with encouragement from those who have witnessed my methods, has stimulated me to produce this neurological record.

I have been fortunate in having at my disposal a wealth of clinical material, in the military and civilian patients of the hospital, which has included, not only hysterical disorders, but also disorders due to structural change in the cerebrospinal nervous system. It has therefore been possible to compare clinically these two conditions. A prolonged study of individual cases during the process of treatment has afforded me an opportunity of studying the reaction of each patient until recovery has been fully established. The terms hysterical

* "The Treatment of Some Common War Neuroses," June 9, 1917, pp. 867 to 872.

and functional have been employed synonymously in these pages.

Only a small percentage of my cases have been used as illustrations, and the majority of the patients had received some previous treatment. It will be seen that the average duration of the disorders extended over a period of nearly one year. To demonstrate the method employed, it has been necessary to go into considerable detail. I have therefore adopted the use of didactic illustrations.

I have to express my gratitude to the honorary members of the staff for their kindness in permitting me to publish the illustrative cases.

Finally, my sincerest thanks are due to Dr. S. A. Kinnier Wilson for his invaluable criticism and many helpful suggestions in the reading of my manuscript and proofs.

LEWIS R. YEALLAND.

NATIONAL HOSPITAL, QUEEN SQUARE, W.C.

, March, 1918.

CONTENTS

CHAP.	PAGE
PREFACE	v
AUTHOR'S PREFACE	ix
I. HYSTERICAL DISORDERS OF SPEECH	I
<i>Illustrative Cases :</i> Mutism—Mutism with Tremors—Mutism with Hemiplegia—Mutism with Paraplegia—Aphonia—Stammering.	
II. HYSTERICAL DISORDERS OF HEARING	31
<i>Illustrative Cases :</i> Deafness—Deaf-Mutism—Deaf-Mutism with Hemiplegia—Deaf-Mutism with Paraplegia.	
III. HYSTERICAL DISORDERS OF VISION	52
<i>Illustrative Cases :</i> Blindness of Left Eye—Blepharospasm with Blindness in Left Eye and Diminished Vision in the Right Eye—Spasm of Accommodation.	
IV. HYSTERICAL MONOPLÉGIA	72
<i>Illustrative Cases :</i> Flaccid Wrist Drop—Rigid Wrist Drop—Flaccid Monoplegia of the Upper Limb and Head Drop—Rigid Monoplegia of the Upper Limb—Flaccid Foot Drop—Rigid Foot Drop—Flaccid Monoplegia of the Lower Limb—Rigid Monoplegia of the Lower Limb.	

CHAP.	PAGE
V. HYSTERICAL PARAPLEGIA	115
<i>Illustrative Cases:</i> Flaccid Paraplegia of the Lower Limbs—Flaccid Paraplegia of the Lower Limb after an Injury—Flaccid Paraplegia of the Lower Limbs associated with Hysterical Fits—Rigid Paraplegia of the Lower Limbs with no Objective Sensory Disturbance—Rigid Paraplegia of the Lower Limbs with Hyperæsthesia—Rigid Paraplegia of Upper and Lower Limbs with General Clonus.	
VI. HYSTERICAL HEMIPLEGIA	155
<i>Illustrative Case:</i> Left Hemiplegia.	
VII. FITS, INVOLUNTARY MOVEMENTS AND DISORDERS OF GAIT	165
<i>Illustrative Cases:</i> Fine Tremor of the Right Upper Limb—Coarse Tremor of the Left Upper Limb—General Tremor with Fits and Stammering—Pseudo-Athetosis with General Tremor and Mutism—Pseudo-Chorea—Head Nodding—Monoplegic Gait—Paraplegic Gait—Bent Back Gait (Camptocormia).	
VIII. HYSTERICAL DISORDERS ASSOCIATED WITH ORGANIC DISEASE	212
<i>Illustrative Cases:</i> Monoplegia of the Upper Limb—Left Hemiplegia—Paraplegia with Blepharospasm, Diminished Vision, and Conjunctivitis—Paraplegia.	
IX. MALINGERING	237
INDEX	249

HYSTERICAL DISORDERS OF WARFARE

CHAPTER I

HYSTERICAL DISORDERS OF SPEECH

*Illustrative Cases : MUTISM — MUTISM WITH
TREMORS — MUTISM WITH HEMIPLEGIA —
MUTISM WITH PARAPLEGIA — APHONIA —
STAMMERING.*

HYSTERICAL disorders of speech may exist alone or may be accompanied by one or more forms of paralysis not due to organic nervous disease. Deafness accompanies mutism more frequently than do any of the other functional conditions. Mutism, however, more commonly occurs by itself than does deafness, for where the latter exists it is nearly always associated with mutism. As a special chapter is devoted to disorders of hearing, deafness will not be here discussed.

Hemiplegia and paraplegia are very often associated with mutism, and it is interesting to observe that when the former occurs with mutism it is generally on the right side. Functional mutism,

coupled with left hemiplegia, is rare ; indeed, I have not yet observed such a grouping.

Speech disorders vary, not only at the time of onset, but during the process of treatment. The patient may be completely mute or he may be unable to speak above a whisper ; again he may be capable of phonating, but when he talks he stammers. All these phases may be present at various times in a neurotic individual, the degree depending on the strain to which the patient has been subjected. In untreated cases which have continued for a long period of time, the functional mute may learn to whisper if he has not already practised finger talking.

It has been my experience in the treatment of hysterical defects of speech to find generally a gradually increasing difficulty from the first to the last of these phases ; that is, the mute responds more quickly to treatment than the stammerer. But this does not always obtain, as the illustrations I have chosen will indicate. It may be accounted for by the fact that many of these conditions have received inadequate treatment, and therefore the patient's confidence has been shaken and his resistance or negativism increased. In treating these patients it is important to aim at complete recovery, otherwise they have a tendency to relapse, and sometimes become very obstinate and even intractable. Where hemiplegia or paraplegia accompanies the speech disorder, the former conditions respond

very quickly to treatment, and occasionally recover of themselves after the latter has been successfully treated.

Early cases of functional speech defect are rarely brought to England; many patients recover a few days after the onset and are sent back to their units. Most of the cases that I have treated have been patients suffering from long-standing functional speech disorders, with whom previous efforts at treatment have been unsuccessful. These have included hypnotism, psychoanalysis, anæsthesia, etc., and, in many instances, electricity had been applied. It must be remembered, however, that faradism employed without suggestion and persistence in otherwise intractable cases will fail to produce recovery.

My plan, in treating these cases, has been to make a display of examining the throat, "the seat of trouble," and, while doing so, I have asked the patient to say "ah," to cough, to gargle water aloud, to clear the throat, etc. If the response has not been successful a spatula applied clumsily to the back of the throat has sometimes produced the necessary sound. A sound evoked so easily requires little re-education. I treated successfully one morning in less than half an hour six cases of mutism of less than a month's standing. One responded to coughing, another to the application of a tongue depressor, and three required faradism; the sixth on hearing the others talking fell from a chair, striking

his head on the floor, and began to talk. Many other similar instances could be quoted.

One has often heard of the voice being restored in peculiar ways, for example, a mute patient, when told "Your mother wears a wig," blurted out indignantly, "She does not"; in another instance the nurse told the physician in the patient's hearing that the latter was receiving beer for breakfast, whisky for lunch, and wine for dinner—"all the wine he can drink"; the patient at once replied, "Doctor, that is not true." I have not personally experienced such rapid responses in my patients; my powers of suggestion in many cases have had to be supplemented by determination and hard work.

The majority of cases, and indeed nearly all those which have existed over three months, do not respond to such simple measures, and electricity, together with persuasion and encouragement, must be resorted to. Electricity is the great sheet-anchor of treatment in these cases, and until its use has been employed the patient must not be led to believe he is being treated, even though a return of voice may be expected during an examination of the larynx.

With recovery of the voice there is usually a marked change in the mental condition of the patient; he becomes interested, and the fact that he has recovered a lost power changes his attitude of apathy and suspicion into one of greater or less exaltation and gratitude. He will confide in you,

and as a rule becomes very demonstrative. At times he will break down emotionally as he refers to his previous hardships ; all this, however, can be easily controlled by one who is ordinarily inventive. The hand-shake must be refused, and he must not be allowed to think that a miracle has been performed. The patient is not sent back to his ward until he has been cured ; and all references to his former condition are discouraged. He is kept for a time in the hospital for the improvement of his general health, during which period he can be watched and prevented from relapsing.

The occurrence of pharyngeal anæsthesia has been disputed by many, but it has been my experience to find in conditions of hysterical mutism quite a marked sensory loss over the posterior wall of the pharynx. It is difficult to state what is the normal sensibility of this part. I have placed a spatula against the posterior pharyngeal wall, and although the palatal reflexes have been present, I have found a definite impairment of sensibility. Only strong faradic shocks were recognised in cases of mutism ; weaker currents were appreciated in cases of aphonia, and there was no perceptible change in the stammerers. The occurrence in these conditions of right hemianæsthesia or some form of sensory loss over the right side of the body is an interesting complication.

The diagnosis of hysterical mutism should not be difficult, particularly if there is a history of sudden onset associated with shock. Indeed, when mutism

occurs associated with some other functional disorder, a diagnosis is usually established before an examination is made. It is difficult to conceive of any single organic lesion suddenly producing complete loss of the power of speech as a unique symptom.

In hysterical speech disorders, a laryngeal examination reveals an adductor "paralysis" of the vocal cords, which move outwards during inspiration, but do not become approximated with attempts at phonation. The vocal cords assume a position of bilateral abduction in functional mutism.

Mutism may occur as part of the general negativism in psychopathic conditions, more particularly in the catatonic state of dementia præcox. I attempted to treat a mute whose face was drawn up on the right side in a stereotyped smile, and in whom *flexibilitas cerea* was a prominent manifestation. The voice returned, but a condition of echolalia which then supervened could not subsequently be overcome.

Syphilitic perichondritis may produce a condition like functional aphonia, but in the former disease an examination of the larynx shows that the vocal cords do not move normally during respiratory movements, and there is no approximation when the patient begins to say "e."

In early laryngeal tuberculosis, when the patient speaks in a whisper, there is usually infiltration of the interarytenoid folds associated with a lax condition of the cords.

Stammering which is not acquired in early life is usually hysterical.

Hysterical disorders of phonation may simulate any speech defects due to intracranial lesions, and among these disseminated sclerosis, general paralysis of the insane, bulbar paralysis, Wilson's disease (progressive lenticular degeneration), cerebral hæmorrhage, Little's syndrome, certain cerebellar lesions, Friedreich's disease, double athetosis, and paralysis agitans may be quoted. In such cases the presence of other signs of organic nervous disease will establish the diagnosis.

Some illustrative cases may now be given :—

Case A1.—MUTISM

PRIVATE, 24 YEARS OF AGE. DURATION,
9 MONTHS.

This man took part in the Mons retreat, battle of the Marne, battle of the Aisne, and the first and second battles of Ypres. He also fought at Hill 60, Neuve Chapelle, Loos and Armentières. In April, 1916, he was sent to Salonica, and three months later, while attending to his horses, fell down unconscious; he says "on account of the intense heat." For five hours he remained unconscious, and on waking "shook all over" and could not speak. When I saw him nine months later he was mute. Many attempts had been made to cure him. He had been strapped down in a chair for twenty

minutes at a time, when strong electricity was applied to his neck and throat ; lighted cigarette ends had been applied to the tip of his tongue and " hot plates " had been placed at the back of his mouth. Hypnotism had been tried. But all these methods proved to be unsuccessful in restoring his voice.

When I asked him if he wished to be cured he smiled indifferently. I said to him : " You are a young man with a wife and child at home ; you owe it to them if not to yourself to make every effort to restore yourself. You appear to me to be very indifferent, but that will not do in such times as these. I have seen many patients suffering from similar conditions, and not a few in whom the disorder has existed for a much longer time. It has been my experience with these cases to find two types of patients ; those who want to recover, and those who do not want to recover. Though you appear to be indifferent, I recognise the fact that you belong to the latter group. I understand your condition thoroughly and it makes no difference to me which group you belong to. You must recover your speech at once." He became somewhat depressed ; his eyes fell from looking at me, and I left him.

In the evening he was taken to the electrical room, the blinds drawn, the lights turned out, and the doors leading into the room were locked and the keys removed. The only light perceptible was that from the resistance bulbs of the battery. Placing

the pad electrode on the lumbar spines and attaching the long pharyngeal electrode, I said to him, " You will not leave this room until you are talking as well as you ever did ; no, not before." The mouth was kept open by means of a tongue depressor ; a strong faradic current was applied to the posterior wall of the pharynx, and with this stimulus he jumped backwards, detaching the wires from the battery. " Remember, you must behave as becomes the hero I expect you to be," I said. " A man who has gone through so many battles should have better control of himself." Then I placed him in a position from which he could not release himself, and repeated, " You must talk before you leave me." A weaker faradic current was then applied more or less continuously, during which time I kept repeating, " Nod to me when you are ready to attempt to speak." This current was persevered with for one hour with as few intervals as were necessary, and at the end of that time he could whisper " ah." With this return of speech I said : " Do you realise that there is already an improvement ? Do you appreciate that a result has already been achieved ? Small as it may seem to you, if you consider rationally for yourself, you will believe me when I tell you that you will be talking before long." I continued with the use of electricity for half an hour longer, and during that time I constantly persuaded him to say " ah, bah, cah," but " ah " only was repeated. It was difficult for me to

keep his attention, as he was becoming tired ; and unless I was constantly commanding him his head would nod and his eyes close. To overcome this I ordered him to walk up and down the room, and as I walked with him urged him to repeat the vowel sounds. At one time when he became sulky and discouraged he made an attempt to leave the room, but his hopes were frustrated by my saying to him, " Such an idea as leaving me now is most ridiculous ; you cannot leave the room, the doors are locked and the keys are in my pocket. You will leave me when you are cured, remember, not before. I have no doubt you are tired and discouraged, but that is not my fault ; the reason is you do not understand your condition as I do, and the time you have already spent with me is not long in comparison with the time I am prepared to stay with you. Do you understand me ? " This evidently made an impression on him, for he pointed to the electrical apparatus and then to his throat. " No," I said, " the time for more electrical treatment has not come ; if it had I should give it to you. Suggestions are not wanted from you ; they are not needed. When the time comes for more electricity you will be given it, whether you wish it or not." I had intended at that time to resort to electricity, but, owing to his attitude, I postponed its use and instead made him walk up and down the room repeating " ah, ah, ah," merely to keep him awake and to

show him that his suggestion regarding the electricity would not be accepted. I did not talk to him unless he stopped repeating "ah." Meanwhile, each explosion of the whispered "ah" was accompanied by an almost superhuman effort, manifested by spasmodic contraction of the muscles of the neck, the head being raised in jerks. However, he advanced no further than the whispered "ah," and indeed that was repeated only with considerable effort, though the degree of effort was diminishing materially. As I placed him back in the chair and once more attached the battery to him I said: "You are now ready for the next stage of the treatment, which consists of the administration of strong shocks to the outside of the neck; these will be transmitted to your 'voice box' and you will soon say anything you wish in a whisper." He was quite ready to accept the treatment. With each application of the faradic shock, applied to the neck in the region of the larynx by means of a key electrode, I said to him quickly, "Say ah, bah, cah, dah." I repeated this as I touched him quickly each time. It was not long before he began to whisper the vowels with hesitation. When that was accomplished I said to him, "Are you glad you have made such progress?" I expected him to answer me, but he did not; instead, he began to cry and whispered in a stammer, "I want a drink of water," and I replied, "Yes, you will have a drink of water in a few seconds, in fact just as soon

as you can utter a sound." He again made an attempt to leave the room, and I said firmly to him, " You will leave the room when you are speaking—speaking normally. I know you do not want the treatment suspended now you have made such progress. You are a noble fellow, and these ideas which come into your mind and make you want to leave me before you are cured do not represent your true self. I know you are anxious to be cured and are happy you have recovered to such an extent ; now you are tired and cannot think properly, but you must make every effort to think in the manner characteristic of your true self—a hero of Mons. You are already doing splendidly, and I am satisfied that you are now determined to talk and I am very pleased with you ; more than that, I am proud of you." His attitude then changed considerably, and from that time he made every attempt to recover. " You must utter a sound," I said ; " I do not care what the nature of the sound is—whether you shout or cough or moan. You will understand me when I say I shall be able to train any sound into the production of vowel sounds, then into letter sounds, and, finally, into words and sentences." Immediately before I applied the electrode again to the posterior wall of the pharynx I said, " Utter a sound when you take a deep breath and as soon as I touch your throat." He phonated in inspiration, but was unable to produce an expiratory sound. I firmly held him in the chair and said to him, " It

is getting late ; I may have to use a stronger current. I do not want to hurt you, but, if necessary, I must." I then applied shock after shock to the posterior wall of the pharynx, commanding him each time to say " ah," and in a few minutes he repeated " ah " in expiration. I continued with the faradism until he could repeat " ah " distinctly, and I did not discontinue its use until he was able to repeat any letter or any word I ordered him to say. I then relinquished the use of electricity for a time, the patient being rather exhausted, but I persisted with him, commanding him to repeat word after word, which he did with a considerable stammer. When he was able to repeat the days of the week, months of the year, and numbers, he became very pleased and was again quite ready to leave me. I said, " Remember, there is no way out, except by the return of the proper voice and the door. You have one key, I have the other ; when you talk properly I shall open the door so that you can go back to bed." With a smile he stammered, " I believe you have both keys—go ahead and finish me up." Then I said, " The current has got through all right, but the impulses are still interrupted, the muscles of your neck are contracting in spasms ; this will have to be overcome by the administration of more electricity to the muscles of your neck—the spasms in a short time will be overcome, and when that occurs you will be speaking without difficulty. It is quite simple. I am sure you understand me when I tell you that

each time you attempt to talk the muscles of the neck pull down the jaw in short, sharp spasms. Now take notice how easily this is overcome ; each time you feel the shock to your neck you are to say a, b, c, d in succession and go right on repeating the alphabet." Very strong faradic shocks were applied in momentary applications to the neck over the larynx as he repeated each letter, and this current prevented the spasm each time. This was continued for about ten minutes, the strength of current being gradually diminished until it was discontinued and he was able to talk without the slightest stammer. He was not, however, completely cured, for the condition of spasm or clonus had passed to the left arm, and, as he spoke, there was a paralysis agitans-like tremor in the left upper limb. I said to him, " Do you see what has happened ? The wind has gone down, but the waves are still lingering—look at your left arm." " But," he said, " Doctor, I am talking, talking as well as I ever did in my life ; do let me shake hands with you." I said, " No, your shaking arm must be treated." He smilingly replied, " You will not take long to do that." I said, " The shakiness of your arm must be treated in the same manner in which the neck was treated, as it is the same resistive condition, only manifested in another part. The spasm has left your neck and appeared in your left hand." I applied a weak faradic current by means of a roller electrode up and down the extended forearm, telling him at the same time to

repeat the days of the week, months of the year, etc. The tremor was overcome in a very short time, but it appeared in the right arm, and before it disappeared altogether had to be chased from the left arm, right arm, then from the left leg, and finally from the right leg, all these parts being treated similarly. He became quite excited and said, "Doctor, doctor, I am champion," to which I replied, "You are a hero." He then said, "Why did they not send me to you nine months ago?" With a view to impressing on him the certainty of the cure being permanent, I answered him by saying, "Such a condition as yours could not have been cured nine months ago. You have had time to rest, your general condition had localised itself in your voice, which could not have been treated so quickly had you come here earlier."

This hitherto intractable case received four hours' continuous treatment.

Case A2.—MUTISM AND TREMBLING

PRIVATE, 32 YEARS OF AGE. DURATION,
9 MONTHS.

This soldier was a despatch rider, and had run the gauntlet of bombardments for fourteen months. While he was on the Somme a piece of shrapnel hit his helmet, and he was sent back to a rest camp for a fortnight. He returned to his post a few weeks later, when a shell burst on the parapet and he was buried to the neck. When he came to, he found himself lying

on a stretcher in the field station, "all of a tremble" and unable to speak. A month later he was transferred to England, and when I saw him he was mute and in a severe nervous condition, any sudden noise causing him to "start." He was very negativistic, and on being spoken to he would turn his head in the opposite direction. The legs and arms were obviously anæsthetic, for I examined him with a pin when he was asleep and was able to thrust it deeply into the flesh without waking him. However, when the pin approached the sixth rib he awakened with a jump. I again examined him when he was awake and found the same sensory level. I said to him, "Did you know before that you had no feeling in the legs? Just watch me when I prick you with this pin, you do not feel it at all." With this remark his attention was obtained, and I said, "I thoroughly understand your condition; do you believe me?" He nodded affirmatively. Then I said, "Do you wish to recover?" He again nodded in the affirmative. "If you are sure you want to recover," I said, "you can easily be cured with electrical treatment."

He was taken to the dark room and a faradic battery employed, the pad electrode being placed as usual over the lumbar spines, and a key electrode attached. Then I said to him, "I shall apply shocks to your neck over the larynx, which is the seat of trouble. When you feel the shock you will have an uncontrollable desire to explode a sound,

but I want you to suppress it. Remember, do not utter a sound ; suppress it. Do you understand me ? Let this sink down into your mind, when you feel the electricity do not utter a sound. I fear that you will shout out, but I warn you not to. I do not want you to. Now, are you ready ? Do you understand ? ” He nodded that he did. Again I said, “ Do not shout when you feel the shock.” Immediately the current was applied to the neck he shouted out. This, of course, was what I expected from him. I said to him, “ Shout again,” and he did so without the aid of faradism. Then he began to half-laugh and half-cry, recognising his voice had returned, and he attempted to take my hand and made an effort to kiss it, but I instantly refused, knowing that any sympathetic measure of this kind would prolong the period of re-education. Instead, I said to him, “ There is no time just now for you to yield to your emotions ; you must be practical and put forth every effort to speak.” I then told him to repeat the alphabet while I quickly and abruptly faradised the neck during the time he was exploding each sound. In five minutes he could talk quite normally. In a very pleased but less demonstrative manner he expressed his thanks. I did not refer to the negativistic demand which I believe he had forgotten. “ You are still very tremulous,” I said. “ This condition will disappear as soon as the feeling is restored to the limbs. Do you believe me ? ” He replied, “ Of course I do,

I believe everything you say after what you have already done." I then applied gentle faradism up and down the lower limbs, urging him to keep them steady. After they had been made steady at rest I told him to perform various movements, continuing the use of gentle faradism during the time he was executing these movements. The limbs were soon moved voluntarily without any tremor. Similar treatment was applied to the arms. He was then re-educated to walk.

This patient received twenty-five minutes' continuous treatment.

Case A3.—MUTISM AND HEMIPLEGIA

PRIVATE, 43 YEARS OF AGE. DURATION,
5 MONTHS.

A shell had burst close to this patient when he was in action on the Somme front. After that he remembered nothing until he awoke in a hospital in Boulogne a few days later to find that the right side was weak and that he was speechless. He was sent to England a week later, and when I saw him five months after the onset he was dull, heavy and drowsy, very depressed and in a nervous condition. There was marked weakness of the right side, excluding the face, and he was quite dumb. There was relative hemianalgesia of the right side, but no signs of organic nervous disease. On being asked what he was troubled about, he wrote, "I am all upset; I have been through far more than I can

stand. I was a fisherman in Canada with a wife and family. My wife has not written to me ; I fear she is dead and I am worried about the children. I want to go home now ; I cannot understand why my wife has not written to me." I assured him that he would be able to return when he had succeeded in talking and walking normally, and that the condition from which he was suffering was of such a nature as to produce the feeling of depression which was so prominent a feature of his case. " You wish to recover your power and speech ; I know that very well ; when you are cured all the worries will be overcome, because you will be able to think rationally." He appeared to respond to this suggestion, although he looked somewhat fearful. There had been no previous attempt to treat his condition, and that fact—together with the short duration of the disease—indicated that almost any method suitably applied would produce a rapid result. I said to him, " Your voice will return in a very short time by the application of a mild current of electricity—do you believe me ? " He nodded that he did. I then applied a very mild faradic shock over the larynx, after which he instantly shouted out and said, " It is all right ; now I can talk ; will you fix up my leg and send me back to Canada ? " I again assured him that he would return to Canada. Gentle faradism by means of a roller electrode was then applied to the right leg, during which time he was continually ordered to

move the limb more and more. The arm was similarly treated. He was then taken to the exercise room and placed in a sculling exercise machine for ten minutes, after which his walking was quite normal. Though the physical manifestations of his disability cleared up, a degree of depression persisted until he left the hospital for Canada.

This patient received twenty minutes' continuous treatment.

Case A4.—MUTISM AND PARAPLEGIA

PRIVATE, 23 YEARS OF AGE. DURATION,
5 MONTHS.

At Ypres when the patient was preparing trenches, an enemy bombardment began. He remembers the beginning of the bombardment but nothing more until he awakened at Boulogne three weeks later to find his lower limbs powerless, and his speech gone.

On admission to the National Hospital five months later he was very tremulous, and alternately depressed and exalted. His memory was bad and he was disoriented. He had great difficulty in writing on account of the general tremor of the upper limb. A brother was in a hospital in England suffering from shell shock and a sister was subject to attacks of "nervous breakdown."

A physical examination showed a paraplegia of the lower limbs associated with marked clonus

of the legs and a fine tremor of the arms. There was complete sensory loss in the lower limbs below a line drawn around the upper part of the thighs, and dullness to pin prick over the rest of the body. There were no signs of organic nervous disease. In view of his emotional instability I said to him, "You are in a bad way, but you will recover quickly. Conditions such as yours in which there is loss of speech and paralysis with general restlessness of the body are easily treated. The great factor in the treatment is that you must believe you are able to talk when I treat you. Then the power to the limbs will quickly return. Now show me in what way you express your emotional state by either crying or laughing." He instantly began to laugh hysterically and indicated his readiness to receive treatment. I then told him to open his mouth as widely as he could and allow the tongue to fall back on the floor of the mouth. Introducing a spatula and pressing it against the posterior wall of the pharynx, I ordered him to sing; he began to choke. I then said, "Say 'ah,' " and made him repeat this a number of times; however, he stammered considerably in his attempt. "This stammering must cease quickly," I said, "and must be overcome by applying electricity to the leg. Each time you see the muscles of your leg contracting you are to say 'ah' short and sharp without a stammer. I shall apply the current of sufficient strength and duration and it will not be shut off

until you have made the sound satisfactorily to me. Now bend your thigh each time I touch you and say 'ah.' ” I applied a strong faradic current by means of the wire brush to the flexor muscles of the thigh, and with each shock he succeeded in moving the leg and phonating without a stammer. The current was applied alternately to both legs until all movements could be performed satisfactorily, and at the same time he was re-educated to speak properly. In about ten minutes this was successful. He laughed more hysterically than ever and said, “ I did not expect to recover so quickly.” I replied, “ You have not recovered yet ; your laugh is most offensive to me ; I dislike it very much indeed. One could never consider a man in your mental state cured ; you must be more rational. I shall leave you for five minutes and during that time I want you to think. Give your lazy brain some work to do. When I come back to you I shall expect to find a man with all his mental faculties intact. Do you understand ? ” He looked rather ashamed and said he was sorry. I returned to him in ten minutes, and found his mental condition changed ; he was now sober and rational. I applied gentle faradism to the arms for about ten minutes, after which the tremor entirely disappeared. I then re-educated him until he succeeded in walking and speaking without difficulty.

This case required forty-five minutes' continuous treatment.

Case A5.—APHONIA

PRIVATE, 28 YEARS OF AGE. DURATION,
2 MONTHS.

This patient spent several days in the trenches during a severe bombardment on the Somme. A bomb exploded on the parapet, blowing him backwards and burying him to the neck. He succeeded in crawling out himself, but remained in the trenches to carry on "look-out" duty until the following morning. The next night, when in a dug-out, he had severe headache and pain in the eyes. He went to sleep there, and came to his senses in a hospital at Étretat eleven days later. The legs were weak, he had difficulty in hearing, and was not able to talk above a whisper.

One month later when I examined him he could walk and hear without difficulty, but he could not phonate. There were no signs of organic nervous disease and no functional anæsthesia. The back of the throat, however, was somewhat insensitive. The mental condition was good. No previous attempts had been made at treatment. The short duration, together with the fact that he had not previously been treated, indicated a rapid restoration. The fact that his mentality was satisfactory showed that firmness alone was necessary. I said to him, "Your voice will come back in a short time of its own accord, just as the hearing and weakness of the legs have been restored by rest.

You need rest. You may decide for yourself whether you wait for time to heal you or whether you would prefer an immediate cure. Your voice will recover with treatment in less than a minute if you wish to have it cured." He replied, " I prefer to have my voice returned as soon as possible." A small faradic battery was used and a key electrode attached. I said, " You will say ' ah ' as soon as you feel the shock." I applied one shock of strong faradism to the neck over the larynx, when he at once shouted out and began to talk normally without re-educative measures.

Case A6.--STAMMERING

A MAJOR, 24 YEARS OF AGE. DURATION,
4 MONTHS.

The details of the onset need not be given, except to say that the patient had not stammered previously and that its commencement was sudden. I choose this example because it is one of the most recent cases of stammering I have treated. A fellow officer accompanied him to the National Hospital. For the first half-hour he was very depressed and did not speak, but sat in a chair with his head turned away from me, apparently oblivious of all conversation. His attitude might well be compared with that of a sulky schoolboy. Occasionally tic-like movements occurred in the shoulders. When his friend had left the room I said to the patient, " Have you come for treatment or are you paying

me a friendly visit ? ” He spoke for the first time with exasperating hesitation, saying, “ I did not want to come here at all. I require a prolonged rest. I have been told that you use electricity, but I have been treated in France and England by that method, and after each treatment my condition has become much worse. Even the thought of coming to see you has made me stammer more than on any previous occasion.” I replied, “ I am very sorry, but I cannot be held responsible for any of your previous actions, nor for the offences of others. If you came here for treatment I shall treat you ; if, on the other hand, you do not wish treatment I shall have no opportunity of committing any offence against you.” He again stammered, “ Nobody understands my condition. I am worried nearly to death. I understand my own feelings better than any other person, and I know I need a rest.” “ I am not zealous to understand your condition,” I said. “ I do not want to know anything about it, but I do know you have a stammer which is most unpleasant. I do not understand why you have had a stammer for five months and I do not wish to, but I do know that such a stammer can be successfully treated even if it is one that you say nobody understands. If you have a particular insight into your condition I do not even wish to rob you of that claim. It is in the treatment of your stammer that I am interested. Do you want to retain it because you understand it, or do

you prefer to get rid of it ? ” He said, “ I may as well tell you plainly I have no confidence whatever in you, not the slightest. Some men inspire one with confidence, but it would be impossible for me to have any confidence in you. You do not object to my speaking the truth plainly ? ” “ Not a bit,” I said, “ if you speak the truth. You are not, however, giving expression to what you truly think, and therefore you are not speaking the truth at all when you make such a statement, and more than that you are doubly untruthful when you try to shield one idea by expressing an opposite one and putting a ‘ truth ’ label on it. I realise, too, that if you make such a statement often enough you will believe it to be true, but I shall not. You have confidence that I can restore your voice ; if that were not so, then why are you fencing with me or why have you come to see me ? You have not answered my first question. Every statement you have made has been most feeble. One with a legal training such as yours should have at his disposal greater powers of argument which he would be able to use with greater advantage to put me off, if he did not wish to be cured. But such powers have been undermined by the nervous exhaustion from which you are suffering, and you do not now enjoy the power of thinking you once did. At present I do not care what you think or say, because you are not normal. Your stammering indicates to me the outward manifestation of

your psychic condition ; that is, when you attempt to talk the words are held back and interrupted by a spasm of the vocal cords and also by spasms of the muscles of the neck ; the latter you can easily see if you look in the mirror. You know what you want to say but cannot say it as quickly as you would wish. The same condition exists in your higher mental sphere ; you know what you want to think, but you have an uncontrollable tendency to do so in an antagonistic way. In other words, your speech and your mind are at present corrupted by that hideous enemy we call 'negativism.' " I then made an attempt to look at his throat, but he became resistive, moving his head further and further away from me, and it was impossible to examine the larynx. "Do not act so foolishly," I said. "Do you understand what I have said about negativism? Why, it is being demonstrated again in your present attitude. You are overwhelmed with it." With this statement he rose to his feet, straightened himself and looked at me in a very dignified manner, but did not speak. I casually said, as I looked away from him for the purpose of reaching his hat and stick, so that he might go, "I must confess such a pose is quite dramatic and admirable, but at present I feel too irritable to appreciate it. When you cast off that cloak of negativism you may return to me so that I may restore your voice." I opened the door, but he hesitated to go. I continued holding the

door open as though I expected him to leave the room immediately. I did not look at him, but repeated "more negativism, more negativism" as he left the room.

He returned to —— Hospital, but that evening a friend telephoned to ask when I could see him again. He was punctual on his return two days later. I said to him, "Why have you returned? Do you wish to be treated?" He again stammered, "I could not be satisfied until I had seen you again. When I returned to the hospital I was extremely depressed. I hate making a fool of myself, but you insisted on my leaving you last time before giving me an opportunity of saying what I wanted to, and I was too excited to talk at all. I did not want you to think that I was afraid of any treatment which you might administer. Although I have returned I have no more confidence in you than I previously had. I cannot help it; I need a rest—a long rest in the country. If I am subjected to the strain which I believe your treatment will produce, I shall be much worse. I have told you already that electricity has failed every time. Do you intend to use electricity?" I replied, "I have no time to enter into any controversy with you. I shall say no more to you until you answer the first question I asked you. You are beginning to go over the same old ground again, but you must stop immediately. If you wish your voice restored it shall be restored, there must be no halfway — all or none. If you

submit to the treatment I shall see that there is a complete recovery, if not for your sake, then—for the sake of my own reputation. What is the answer—Yes or No ? ” He again began to talk in a negativistic manner, but I quickly interrupted him by limiting him to a positive or negative reply. The former he at last accepted. I then said, “ Your negativism has gone at last. I must congratulate you—the recovery will be rapid.” When making a physical examination I demonstrated to him a partial right hemianalgesia of the trunk, arm, and face. He said, “ I did not know that was there ; why is it that I do not feel the pin prick as much on the right side as I do on the left ? ” “ Oh,” I said, “ I expected to find it ; such a sensory loss always appears in these conditions.” “ But why is it on the right side ? ” he asked. I replied, “ You know that the speech centre of a right-handed man is situated on the left side of the brain. Your stammering and the loss of feeling indicate to me that the left side of your brain is out of order, and I conclude that your condition is mental in origin. I shall give gentle faradism to the right side of the trunk while you are repeating the alphabet, but remember, you must repeat it quickly.” I then applied gentle faradism by means of a roller electrode up and down the right side of the trunk, while he began to repeat the alphabet, numbers, days of the week, months of the year, and almost instantly he spoke without a stammer. Then I gave him a book

to read, and in five minutes he was talking normally. His mental condition had completely changed. He made a request that he might present himself in a week, but instead of coming sent the following letter :

“ I must apologise for my great rudeness in not coming to see you on Saturday as we had arranged. My excuse is that my voice is absolutely well now—thanks to you—and I thought it unnecessary to trouble you by coming. I intended to telephone to you about 8.30, but to my horror overslept and did not wake up till 9.30, when it was too late. I hope you will forgive me. I am very grateful for your splendid cure, which has been so far absolute. I have not stuttered since I left you.”

CHAPTER II

HYSTERICAL DISORDERS OF HEARING

*Illustrative Cases: DEAFNESS—DEAF-MUTISM—
DEAF-MUTISM WITH HEMIPLEGIA—DEAF-
MUTISM WITH PARAPLEGIA.*

HYSTERICAL deafness is, as a rule, bilateral and nearly always accompanied by mutism, whereas when such deafness exists by itself malingering might well be suspected. Patients with hysterical deafness speak loudly, and when they are reading speak even more loudly if noises are produced near their ears. Deaf-mutism is possibly one of the most common forms of functional disturbance met with in the present war, but frequently the hearing recovers soon after the onset, leaving the patient mute. Hysterical hemiplegia or paraplegia often accompanies deaf-mutism.

In this condition it is usual to treat the hearing first, so that the patient may be rendered more accessible to further treatment. The first suggestions for the purpose of treatment must be made in writing, which, even though the patient is not himself allowed to write, is a laborious task. Suggestions in

writing must be made quickly and the patient prevented from meditating over what is written. For example, in beginning the treatment, the suggestive element must be inserted in the first sentence written—"hearing will be restored quickly"; other suggestions may follow, but when once the patient has read the first sentence the paper should be taken away from him before he has an opportunity of reading what remains. Quickness is a *sine quâ non* of the method.

Sometimes a faradic shock when applied to the neck will result in the sound "ah" being produced; the patient on hearing his own voice begins to talk. In very long-standing cases such a procedure is not advisable, for if it fails to elicit the desired effect at once, recovery may be delayed; as, indeed, often happens when new plans are adopted after one method of approach has failed. On the other hand, if such a method is successful it proves to be a short cut to recovery. When the hearing has been restored, other associated functional conditions rapidly recover with treatment.

The majority of patients suffering from functional deafness can be made to hear very loud sounds of a certain tone; possibly the higher tones are more readily appreciated. When one whistles very loudly into the ear, or shouts down the bell end of a stethoscope, the ear-pieces of which have been placed in the ears of the patient, he will hear the sound but be unable to analyse it. This is one of the

most important facts to realise in the treatment of such cases, for when once a sound has been heard the process of re-education must be immediately undertaken.

Hearing is sometimes restored during the examination of the ear if suggestion is given at the same time. A speculum is placed in the ear, a reflected light introduced, and the patient told by writing to listen carefully and nod if he hears a sound. Bezold Edelmann forks are then applied close to the ear. If he does not hear these, he may hear the high sounds of a monochord or a loud whistle. Again, blowing through the eustachian tubes with a catheter and afterwards shouting, whistling, or even applying a watch close to the ear may produce the desired result. I have not hitherto found the galvanic test necessary in these cases, but it may in some instances be of suggestive value when the appreciation of sound has returned and re-education has been slow.

These methods may be successful in restoring tone analysis, but as a rule they do not in themselves result in complete recovery, and during the process of re-education it is often necessary to resort to the use of a faradic current, which is applied over the mastoid region or introduced into the external auditory meatus. During its application the voice must be lowered more and more until the patient finally hears a whispered "ah."

The process of re-education must be performed in

a similar manner to that described in the treatment of disorders of speech. When the patient hears a sound, but is unable to analyse its nature, he must first of all be made to appreciate the vowel sounds, after which he is made to discriminate the letters of the alphabet, numbers, days of the week, etc. Finally, he is ordered to perform certain movements.

It must be remembered, too, that after he has learned to discriminate sounds, writing must not further be resorted to. Moreover, it is not advisable to leave the patient until he performs movements to order which are given in the whispered voice.

Functional deafness, like other forms of functional paralysis, disappears during sleep. A sound which is only sufficiently loud to waken a normal sleeper will also waken the functionally deaf, but when they are wakened they cannot be made to hear, and claim that they do not know why they have wakened.

As a rule, there is some sensory loss to pinprick over the skin covering the mastoids. Mastoid conductivity and lateralisation of sound from the vertex may be diminished, if not absent.

The outstanding feature in the diagnosis of this disorder is the inability to analyse the sound heard.

Deaf-mutism occurring suddenly in an adult exposed to shock is pathognomonic of a functional condition. Deafness existing by itself with the history of a similar onset may be organic, and in these cases a thorough examination of the ear must

be made. If signs of disease are not present, then the condition may be diagnosed as functional.

Complete binaural deafness rarely, if ever, occurs suddenly in intracranial disease, and if it does, other manifestations of nervous disease are to be expected.

Case Br.—DEAFNESS

PENSIONER, 27 YEARS OF AGE. DURATION,
15 MONTHS

When in a dug-out at Ypres this patient was "blown up," as the result of a shell explosion, and lost consciousness. On regaining consciousness twenty-four hours later he was completely deaf, but had not lost speech. A piece of shrapnel was removed from the knee at a Boulogne hospital. Three months later he was sent to England. The patient was eventually discharged from the Army and has been a pensioner for some three months. Although he obtained work at an arsenal, he was obliged to leave because he feared the possibility of accidents at railway crossings going and coming from work. He gave a history of deafness in boyhood due to a fall on the back of his head, and stated that he learned lip-reading at the early age of eight by watching the movements of his lips in a mirror. At the time of being attested he was found to have normal hearing.

An examination of the ears by the aural specialist was made as follows :

The tympanic membranes and eustachian tubes

tested by a eustachian catheter with auscultation were normal. Hearing tests were made by Bezold Edelmann forks, Edelmann whistle, and the steel monochord. Forks were inaudible either by air or bone conduction. Even at maximum amplitude, the monochord was inaudible by air and bone conduction. Whistles alone and from above the note f^4 were heard faintly.¹

A noise apparatus was inserted into each ear while the patient read aloud. When the noise was switched on he instantly raised the loudness of his voice, and lowered it directly the noise was turned off.

In complete rotation tests and caloric tests normal reactions were readily obtained.

He could understand lip-reading if he was spoken to slowly. This made him quite accessible, and it was not necessary to suggest by writing. I said to him, "From the time you regained consciousness were you able to speak loudly enough for people to hear you?" "Yes, sir," he said, "there was never anything wrong with my voice." On asking him whether he was completely deaf, he replied, "Yes, completely deaf; I cannot even hear the sound of an approaching train." "I am in a hurry," I said; "tell me quickly in which ear you are more deaf." He immediately answered, "Oh, the left one is worse than the right."

¹ f^4 is a note with a particularly penetrating quality—its wavelength being approximately that of the external meatus.

“ Then,” I said, “ your hearing will be quickly restored in the right ear. You are not completely deaf in the right ear ; if you were, both ears would be similarly deaf. When I whistle into your right ear you will hear me.” I whistled loudly, and he said he heard a sound, nothing more. “ The sound,” I said, “ will be easily recognised if I speak through this tube.” Placing a stethoscope to his ears, I shouted “ ah ” down the bell, and he said, “ I can hear you shout, but only in my right ear.” “ But tell me what I say,” I said. If I shouted very loudly he was able to recognise all the letters, but the sound was appreciated only by the right ear. He was then told to close his eyes, as I shouted down the bell end, “ Touch your nose, open your mouth,” etc. These orders were slowly obeyed, and I said to him, “ Do not be so slow ; move more quickly.” After this, orders were obeyed more rapidly and he began to hear lower tones. However, he claimed he could not hear in the left ear, so I allowed him to open his eyes. The tube leading to the right ear was pinched, and I shouted once more down the bell end, commanding him to perform given movements. He did not perform the movements ordered, claiming that he did not hear ; possibly because he observed my fingers pinching the tube. “ Sometimes patients suffering from conditions such as yours hear better with the eyes closed,” I said, and I ordered him to close his eyes again. Once more I shouted into the bell-piece, ordering him to perform movements.

This time my fingers did not pinch either tube. Again he did not perform the movements ; “ I could not hear,” he said. Making sure that he could not see, I pinched the tube leading to the left ear. He failed to perform the movement to order, although I felt certain that he heard. When taken into the dark room, where he could not observe which tube was obstructed, it was speedily proved that he could hear a sound equally with both ears. “ You hear equally well with both ears,” I said, “ that is, whether I pinch the tube going into your right or into your left ear, you hear equally well. Your hearing will soon be completely restored.”

Gentle faradism was then applied to the mastoid region of the right ear, while I repeated, “ You will hear more and more after each application of electricity.” He was soon able to hear a whisper. The stethoscope was then removed from his ears and a watch placed close to the left ear. This he was unable to hear. I said, “ Possibly you will hear better when I apply it to the left ear if I test you by pinching the tubes again ; I shall apply a little more electricity to your left ear, however, and if you do not hear the watch tick then I shall apply the test.” After this faradisation he was at once able to hear the watch applied to the left ear. By further utilisation of the faradic current, I gradually succeeded in getting him to hear my voice farther and farther away from him, until after ten minutes he could hear a whisper at a distance of ten feet.

Case B2.—DEAF-MUTISM

PRIVATE, 35 YEARS OF AGE. DURATION,
26 MONTHS

A shell explosion in France resulted in this patient being buried to the neck. He could not remember anything until he arrived in England a few weeks later. While in a London hospital he made several attempts at escaping and was successful on one occasion. Previous to his admission to the National Hospital he had been given strong faradic shocks; tuning forks had been applied to the head; and sudden noises and hypnotism had also been tried, but all without any result whatever. He was dull, depressed, discouraged and suspicious, and in a tremulous condition. It was obvious that he had little confidence in any efforts that might be adopted for the purpose of restoring his hearing and his speech.

He wrote the following account :—

“ i went on a Sunday and and we was fiting a rear gard tull we got to Yepes, and then we took a German trench and then we Had not many men left so we went to flur Bay and we stoped there all the time i was there till I got Blod up we has oldin a well me and some more and they blew us up i don't know the day, but I think it was the last week in febry 1915 and i don't know any more befor I was in England then i was bad and they sent me to Hospital at Brighton and i was there a long time

and then they sent me to Edmonton and then they sent me to — London General then here i had Brnkits and newmonir to.”

Correcting glasses were worn by the patient as he had a considerable myopia. He perspired profusely over the face, hands, and feet. There was diminished sensibility all over the body, but there were no signs of organic disease.

When I wrote on a piece of paper, “ I shall cure you with electrical treatment,” he shook his head, took his pencil and began to write, but I interrupted him, taking the paper from his hand and destroying it. He looked rather surprised and injured and began to shake more. I then wrote : “ I shall cure your hearing first ; I know you are discouraged, but conditions like yours are always curable, patients always recover from them ; they never fail to recover. I have yet to see a patient who does not respond to the treatment I apply. It is impossible for you not to recover.” This was read by the patient with apparent interest and he made another attempt to write, which I at once checked. I then wrote the following : “ There is no need for you to write, the nature of your condition is familiar to me, you will be cured quickly with special treatment. You must not doubt this.” When he had read this I further wrote : “ Are you not pleased at the idea of being able to send a letter to your wife saying you are cured ? You must tell her to come and see you, and bring her youngest baby with her. Such pros-

pects should chase the gloom away." For the first time he looked pleased and was quite ready to receive treatment.

He was taken to the ophthalmic room, where an examination of the ears, made by the aural surgeon, revealed no organic abnormalities.

Opportunity was taken while he was being examined of whistling loudly into the left and right ears, and when the examination was completed he could hear the sound of a loud, high whistle. I then wrote to him, "You already hear a sound and you will soon hear perfectly." The tone of the whistle was made lower and lower, but he could only hear the very high sounds. He was then told in writing, "Electricity will next be applied to your ear, so that the ear nerve will be stimulated to conduct more and more sound." Strong currents could not be used on account of his nervousness; even the application of the electrode to his ear without any current passing through caused him to shake tremendously, and it was impossible to prevent him from crying. He persisted in putting his head on his hands, and although he had not been hurt in the slightest he appeared greatly injured. Then I wrote, "That is all the electricity you require, you are now on the road to rapid recovery." This I did, recognising the fact that strong shocks had been previously given him and that he no doubt recalled some very unpleasant experiences, which had yielded fruitless results, and that its persistence would be detrimental

to any suggestive methods I might adopt. "You have heard a loud whistle," I wrote; "the electricity which has been applied has fulfilled its purpose; therefore, understand from this that your hearing has returned. You must be re-educated to hear normal sounds. That is an easy process and will not cause you the slightest discomfort. Tubes will be applied to your ears, you will hear the sounds more and more distinctly." This suggestion was undoubtedly accepted by the patient, for he stopped crying, shook less, and even looked pleased. Placing the ear-pieces of a stethoscope to his ears, I shouted "ah" down the bell end, at the same time handing him a piece of paper at the top of which was written "Write down what you hear." He wrote, "I only hear a sound." I then wrote, "That is exactly what I want you to hear; that is splendid. You are quickly recovering. Now watch my mouth as I repeat the sounds and listen with all your power." He at once recognised "ah." This was repeated, the sound being made less and less each time until he seemed to be at a standstill, the stethoscope still being applied to his ears. Then I spoke letters of the alphabet, and he wrote these down correctly, watching me carefully as I repeated each letter. At first he made a few mistakes, but in a short time he heard every letter correctly. Numbers, words with one syllable, words with two syllables, and so forth, were then spoken down the bell end of the stethoscope until he heard them all correctly. I wrote,

"I am sure it gives you great joy to hear again ; it is a pleasure to treat one who is as anxious to recover as you are." Commands such as "touch your nose," "open your mouth," "close your eyes," etc., were next given. All were performed correctly. By this time he had forgotten that I had told him to watch my lips as I spoke to him, his attention being diverted so that I could take away the paper he had been writing on. The stethoscope was then removed from his ears, and I spoke loudly enough for him to hear what I said, giving him orders all the time and persistently asking him if he were happy about it all. He began to whisper, "Yes, sir." He was now hearing everything I said to him and responding in the whispered voice. I then re-educated him to hear by placing him further and further away from me, making my voice lower each time. This did not take long, and in one hour he could hear a whisper at ten feet. The voice had returned without a stammer, but was quite hoarse. He told me he had always spoken in that way.

Case B₃.—DEAF-MUTISM WITH HEMIPLEGIA

BELGIAN SOLDIER, 24 YEARS OF AGE. DURATION,
2 YEARS

This Belgian had been staying at a home for refugee Belgian soldiers, and was brought from there to the National Hospital. He had been treated over a long period of time by faradism, and for six months had been given hypnotic treatment by a specialist,

who finally informed him that if he did not recover immediately he would have to undergo an operation and have a large portion of bone removed from his head. This discouraged him very much. He returned to the electrical treatment apparently more anxious than ever to recover.

The patient had learned to read and write English during his long stay in hospitals in England and carried a note-book in which he wrote anything he wished to say. After he was examined I wrote down, "You will respond very rapidly to the treatment I shall give you. Understand, you will completely recover." He then wrote, "I believe I have come to the correct place. Electricity was no good for me." To which I replied in writing, "No, electricity is no good for your case; it is helpful in many cases, but not in conditions like yours. The trouble is you wish to recover too much, your whole mind is set on one thing—recovery. You must be less anxious to recover. You understand what I mean. Take, for example, the movements of your arm. What good would the power of bending your arm be if you could not straighten it out again; or what good would the power be to you, if you could straighten but not bend the arm? There must be two opposite forces in the arm and similarly in the mind. You must have a desire to get better; that is quite right, you have that. But you must also have a desire not to recover; this can be established immediately by your resisting efforts at your treat-

ment. Do you understand?" He replied in writing, "Exactly." Then I wrote, "Try to resist my treatment; do not pay too much attention to it, in fact pay as little attention to what I am doing as you possibly can. I am now going to examine your ears; you must answer my questions in writing, suppress every effort that would cause you to speak. You must write down the answers in spite of the fact that you may want to speak them. Remember, you have not talked for two years, and there is no reason why you should now, particularly as I do not want you to speak. And remember also to make every effort not to hear when I treat you. Do you understand? I shall not treat you until I have made a complete examination of your ears. For the present I wish simply ordinary attention."

The ears of the patient were then examined; a head mirror was used and a speculum applied to the left ear. After removing the speculum I held Bezold Edelmann tuning forks close to the left ear, writing at the same time, "Do you hear a high sound or a low sound?" He hastily attempted to write, but I would not allow him to, as it was quite obvious from his expression that he heard the sound. "Ah" was next shouted loudly into his ear, and he looked pleased and nodded his head in a very excited manner. A watch was then applied close to his ear, and again he nodded his head excitedly. He was then ordered to perform certain movements, as "close the eyes," "touch the nose," etc., to which he

readily responded when the voice was raised loudly enough. The other ear was similarly shouted into until he heard the alphabet. Standing in front of him, I again ordered him to perform movements, gradually increasing my distance from him, and at the same time speaking less loudly each time. I then said, "Your voice has returned too, but do not speak ; suppress all desire to utter a sound." A tongue depressor was then clumsily introduced to the posterior wall of the pharynx. He immediately gagged and became quite excited when he heard the return of his voice. After this he was made to gargle water loudly. While he was doing this I said, "Gargle loudly, but remember I do not want you to speak just yet, not until I have given you treatment." After gargling he could not resist attempting to speak, but did so in a stammer, after which I re-educated him by applying mild faradic shocks to the neck over the larynx. This treatment lasted one hour.

He returned to the Belgian hospital, after I had instructed him to come back in a week to receive treatment for the arm. The idea of having the arm treated seemed to impress him, for when he returned he expressed a wish to have the leg treated first. I did not recognise any significance in this request, but when he repeatedly referred to it, I thought there might be a possibility of his being desirous of retaining some part of the disorder ; possibly he preferred a paralysed arm to a paralysed leg ; so

I immediately told him, "The arm will first be cured, then the leg, and the leg will not be treated until complete power has returned to the arm." He even pleaded to have the leg treated that day before the arm, as he said, "I want to throw away the crutches." Recognising a deep-seated motive in the expression of such a desire, I paid no further attention to his request and commanded him not to speak further. The arm was again examined, and while I was pricking him with a pin I said, "Do you see you have no feeling in the arm? When the feeling has been restored the power will return." I applied faradism by means of a wire brush up and down the arm, the strength of current being increased until he said he could feel the current. Then I gradually diminished the current as I persuaded him to perform movements of the shoulder. When he became slow in responding to the order of a given movement the strength of current was increased. Orders were similarly given for movements at the elbow, wrist, and hand, until in thirty minutes all movements were well performed. After this was accomplished he was instructed to return to the hospital in a week's time, when the leg would be treated.

On his return a week later he was talking, hearing, and using the arm without any difficulty. "Your leg would have been restored if you hadn't tried to use it during the last week," I said. "I am sure you made every effort, but that is no good; you need

electricity, for it will respond to electrical treatment as the arm has responded. Even in spite of attempts now to suppress the power it will rapidly recover." I applied faradism by means of a roller electrode. The leg was quite rigid and every attempt at movement was more or less checked by the contraction of antagonistic groups of muscles. As I applied faradism to the upper part of the hip, I told him to bend the thigh, straighten the thigh, and so forth. With the leg lifted high from the bed, I ordered him to perform flexion and extension at the knee and ankle. He was then re-educated to walk and was walking without any support in five minutes, but returned to the Belgian hospital with a very slight limp. I ordered him not to use a stick, but to walk as he did before the war and consider himself completely recovered. The limp had disappeared when he returned a few days later.

It is nearly a year since this patient was treated, and for many months he has been working full time in a munition factory.

Case B₄.—DEAF-MUTISM WITH PARAPLEGIA
NON-COMMISSIONED OFFICER, 30 YEARS OF AGE.
DURATION, 2 MONTHS

On his return from patrol duty and when about to leave his trench to visit a bombing post, a shell burst behind this patient. He remembered being thrown from one side of the trench to the other. "It seemed like cartloads of earth being thrown in

upon us." The next thing he remembered thereafter was pain in the legs when he regained consciousness in an ambulance as it travelled over rough roads. When he arrived at the dressing station he could neither speak nor hear ; there was pain all over the body, and the lower limbs were completely paralysed. He had been previously treated in a hospital in France for " paralysis of the legs " following a bombing raid, but returned in three months' time to his unit " perfectly fit." However, he had only been back at his unit a few days when the condition recurred as described above.

On admission to the National Hospital he was ready to write and appeared mentally active, for when I approached him he immediately began to write on a pad which was beside him for such purpose. He was emotionally unstrung and his whole expression was one of fear.

There was considerable loss of bone conduction over the bones of his skull, and also diminution to pinprick over the whole of the body below the first rib. There were no signs of organic nervous disease.

After a physical examination had been made I wrote : " You will be cured very quickly. Your condition has been entirely due to nervous exhaustion, but you have recovered from that as you have been resting two months, and now there is plenty of reserve nervous energy. The principal disorder

which remains is that of deafness. You cannot talk because you cannot hear yourself speaking. When the hearing has been restored you will speak almost instantly. The helplessness of the legs is part of the same condition, but the legs are well nourished and the muscles are strong. I want first of all to cure the deafness; after that the recovery of all the other symptoms will be rapid. You must understand what I mean, read this over and over until you remember every detail. Just remember this: first, it is a curable condition; secondly, it responds very quickly to electrical treatment; and thirdly, the deafness recovers first almost instantly. You will be hearing and talking in a few minutes. Do you follow and do you understand?" He replied by writing, "Yes, sir," and also by nodding his head. He attempted to write further, but I did not allow him to, taking the pencil from his hand. Then he began to cry, and I had him taken to the ophthalmic room in that emotional state. The paper on which the above was written was in his hand and I made him constantly read it.

A faradic battery was employed to which was attached a button electrode. I applied short shocks over the right mastoid and after each faradic application held a watch firmly against his ear. After a few applications he held the watch himself to his ear and laughed hysterically as he nodded his head, meaning that he heard it. He attempted to write,

but I did not permit him ; instead I said, " I know you can hear the watch ticking without your telling me. You will now be able to hear what I say." Orders were next given him to perform movements, and I gradually diminished the sound of my voice until he could hear a whisper. No attention was paid to the other ear.

The patient was then ordered to say " ah," which he did, and appeared grateful and became demonstrative. I told him there was no time for such a scene and left him until he became less excited. When I returned in ten minutes he could talk and hear normally.

Before he returned to his ward I said to him, " Your legs will recover themselves." However, he apparently did not believe me, for in three weeks there was no change in the legs. He asked me one morning when was I going to treat the legs, and I at once decided to apply gentle faradism by means of a roller electrode up and down the legs for a minute or so, during which time I told him to perform movements at hips, knees, ankles and toes. He was re-educated to walk in a very short time.

In this case I concluded that the patient for some reason was not anxious for the legs to recover without electrical treatment.

CHAPTER III

HYSTERICAL DISORDERS OF VISION

Illustrative Cases: BLINDNESS OF LEFT EYE—BLEPHAROSPASM WITH BLINDNESS IN LEFT EYE AND DIMINISHED VISION IN THE RIGHT EYE—SPASM OF ACCOMMODATION.

IN my experience, hysterical disorders of the eye are by far the least common of hysterical manifestations, and such conditions may occur either as a unique symptom or in association with some other form of functional paralysis. Sometimes hysterical disturbance of vision is associated with organic disease in the eye affected.

Functional eye conditions which have come under my observation may be classified as follows :

- (a) Disturbance of acuity of vision ;
- (b) Limitation of the visual fields ;
- (c) Blepharospasm ;
- (d) Functional spasm of accommodation.

(a) *Disturbance of Acuity of Vision.*—Bilateral blindness is rarely seen as an hysterical disorder ; some patients may give such a history, but it is

more common to find that some return of vision either in one eye or both has supervened. On the other hand, uniocular blindness is more common. Patients with monocular blindness, as a rule, see something, but cannot discriminate what they see, and if there is a means of differentiating between functional blindness and malingering, it may be in the claim of patients with the former "to see something"; in the latter "to see nothing." However, the treatment for both types of patients is identical, and it is not advisable to lead them to suppose that malingering is suspected. When the condition has been diagnosed as not due to organic disease, the patient is informed that the disorder is one which responds very quickly to electrical treatment. He is taken into a room by himself, where he is further assured that his sight will be restored. He is placed 6 metres away from a vision card; if he sees some object but says that everything is "misty," he is informed that the electrical current will quickly overcome this. The pad electrode is placed over the cervicodorsal region, and faradism administered by means of a key electrode. The patient is instructed to look at the card intently, during which time a mild shock is given over the scalp and the occipital region, or in the hairless part at the back of the neck. If he is unable to read the first letter, a stronger shock is applied, and he is informed at the same time that a stronger current will be used each time until he succeeds in reading

one of the letters. As a rule the patient responds very quickly, but if the response is slow, the current is increased until he is capable of reading $\frac{6}{60}$ on the vision card. The fact that there has been some return of sight at once encourages him, and he becomes more attentive. He is further informed that the sight will be completely restored. After he has read $\frac{6}{60}$, the mild current may be resorted to again, but if he is slow in responding, the strength of current must be increased until he is able to read $\frac{6}{36}$.

This treatment is persevered with until the patient is able to read $\frac{6}{6}$, if there was previously normal vision and ophthalmoscopic examination or refraction tests did not indicate myopia or hypermetropia. These patients may also be treated by the application of supra-orbital pressure, giving the patient no respite until he can read $\frac{6}{6}$. To do this, it is best to stand behind him, and apply the pressure continuously during the time he is attempting to read the card, while he is informed at the same time that the pressure will not be removed until he is able to read all the letters on the card. This is possibly the most rapid method, but is distressing to the patient, and he will often complain of severe frontal headache for many days afterwards.

(b) *Limitation of the Visual Fields.*—The limitation of the field in hysteria, as a rule, is similar in all directions, and does not resemble the contraction of the field due to pressure on any part of the course of the optic nerve or tract, or to lesions of the

visual part of the cortex. For example, in functional disturbance of the fields of vision, the sight will be limited within 20° , 30° or 40° , etc., in all angles with slight variations. Sometimes hemianopia will be present, but there is usually a hemianæsthesia associated with these conditions. A hemianæsthesia with bitemporal hemianopia will make one suspicious that the condition is due to hysteria. Again, a right homonymous hemianopia with a left hemianæsthesia will also suggest that the condition is functional.

Patients suffering from limitation of the fields of vision due to hysteria generally show some inconsistency in a series of examinations. It has been my custom to examine suspicious cases as follows: The fields are first of all tested with a Bjerrum screen, the patient being seated 1 metre away from the screen. He is next tested with a perimeter, and it is usually found that the readings are inconsistent; in the latter a larger field is shown. For instance, the field may show a limitation extending to 40° in all angles with the perimeter; the same field tested on the screen will show 20° in all directions. The patient is taken back to the Bjerrum screen, and the chair, unknown to him, is moved to $1\frac{1}{2}$ metres from the screen. It generally happens that, whatever distance he is seated from the screen, he will claim the loss limited to the part of the screen which has been already marked out, the pins having been left in the screen.

When the diagnosis of hysteria has been established, the patient is treated. It is advisable not to acquaint him with his inconsistency, but to tell him it is impossible to discriminate between a functional disease and malingering before treatment, and that if there is a recurrence of the condition after treatment, it is undoubtedly due to malingering. The genuineness of the condition is only proved in the fact of the cure being permanent.

Faradism is applied by means of a small diameter key electrode. The patient is seated at a perimeter, and a chart used to mark the improvement so that the patient may see it. A pointer to which a disc 1 cm. in diameter is attached is then carried out from the fixation point, starting at the horizontal meridian on the temporal field. Gentle faradism is applied to the same angle of the orbital ridge, taking the angle from the pupil as it is fixed on the fixation point of the perimeter. The strength of the current is increased if the patient does not make satisfactory progress. All angles 15° distant are similarly treated, the part stimulated on the orbital ridge corresponding as nearly as possible with a similar angle from the pupil. The treatment of one angle must not be discontinued until that part of the field becomes normal: it is usually found that after the temporal field at one angle has recovered there is no need for further treatment. Both eyes are similarly treated.

(c) *Blepharospasm*.—With this condition there is,

as a rule, some loss of acuity of vision, and therefore the treatment consists of restoring the sight. The patient is placed 6 metres from a vision card. The eye which is not being treated is bandaged. Faradism is applied by means of a key electrode over the closed lids for a minute or so, after which the patient is given an opportunity of reading the lower letters of the card. This is persevered with until the sight returns to normal, and when that is accomplished the spasm disappears. Both eyes are similarly treated.

(d) *Functional Spasm of Accommodation*.—This condition is very rarely met with. I have not seen any example in soldiers, and I therefore report the case of a young lady because of the interest found in its long duration and the variability of its nature. The treatment consisted in overcoming the spasmodic contraction of the ciliary muscles by re-educating the patient to fix on near and distant objects. She was first of all made to read the letters on the card at 6 metres ; the card was then gradually brought closer and closer to the patient, but each time it was brought closer and read correctly it was again taken back to its former distance. The process of bringing the card nearer and afterwards withdrawing it was persisted with until the patient was able to read rapidly small print close to her, and immediately after look up and see clearly the smallest Snellen type at 6 metres' distance.

Case C1.—COMPLETE BLINDNESS IN LEFT EYE

PRIVATE, 21 YEARS OF AGE. DURATION,
9 MONTHS

This patient had been subject to attacks of grand mal and petit mal since the age of twelve years. He enlisted a year after the war broke out, and was sent to Egypt, where he remained for nine months. During his stay in Egypt the patient was for about eight months in two different hospitals. Following on epileptic attacks and blepharitis, he subsequently became blind in the left eye. When he left Egypt he was sent to France and brought on to England on account of "debility of the heart," epilepsy, sore feet, and blindness in the left eye.

On his admission to the National Hospital, the patient complained of throbbing, bursting pain in the frontal region. This pain occurred about once a month. The left eye was blind. Vision with the right eye was $\frac{6}{6}$. There was no optic neuritis, both discs being quite healthy. The motor and sensory systems were quite normal, as were also the reflexes.

The patient was treated in the ward. Before treating him I said, "You have been blind in the left eye for a long time. Have you made any effort to use it?" "Oh," he replied, "I have been suffering from blepharitis and that has caused the blindness; the doctors have told me so. My heart is very bad, many doctors have told me to

keep quiet, and I have made very little attempt to do anything." I said, "Your heart is normal, and the eye has recovered." "If my eye has recovered," he asked, "why is it that I cannot see with it?" "I cannot tell you the exact reason," I replied; "you are blind in that eye either because you do not wish to use it, or because it is due to a certain disease which can be cured. An examination of the inside of your eye shows nothing abnormal. While I cannot tell immediately whether you are malingering or not, I shall be able to do so in a few minutes. I shall give you treatment by stimulating a nerve over the eye which will restore the sight. If you recover quickly, then I shall know it is due to disease. If, on the other hand, you recover slowly, and your blindness returns at any time, then I shall decide that your condition is due to malingering." The right eye was bandaged. A vision card was held 6 metres away from the patient. When I asked him if he could see anything, he replied, "Yes, sir, I see something, but I cannot tell you what it is. It seems to me that there is a mist between my eye and everything I look at." I applied supra-orbital pressure for a few seconds, after which I told him to look at the card and tell me if he discerned any letters thereon. "No," he said, "there is the same mist." I then said, "I shall increase the force of pressure, and also the length of each application." Pressure was again applied, this time for about the course of ten seconds, and when he again looked he

was able to read $\frac{6}{80}$. He was then encouraged and assured again that the sight would be completely restored. Again I applied supra-orbital pressure over the left eye for about two seconds, and after this he read $\frac{6}{36}$ and $\frac{6}{24}$, but could see no further. The pressure was applied again and again, and with each interval he was given an opportunity of testing his vision, until finally $\frac{6}{5}$ was read on two different cards.

This patient required four minutes' treatment.

*Case C2.—BLINDNESS OF THE LEFT EYE WITH
PARTIAL BLINDNESS OF RIGHT EYE AND
BLEPHAROSPASM*

PRIVATE, 32 YEARS OF AGE. DURATION,
10 MONTHS

In Mesopotamia, when making an advance on Kut, this patient was injured in the left side of the face by shrapnel and his jaw was broken. He fell unconscious and remembered nothing for eight days, and when he woke he found himself mute and completely blind.

A shrapnel fragment was removed from the left side of the jaw. He was unable to open his mouth for one month. The patient was sent to a hospital in Bombay, where an operation was performed three months after the injury; while there his voice returned—the sight, however, did not improve.

Two months later he was transferred to England,

and for one week he had been at an eye hospital in London. He was subsequently sent to the National Hospital for treatment.

There were three ugly scars on the left side of the face, which were very tender to the touch. He was completely blind in the left eye, and the vision in the right was $\frac{6}{12}$ to $\frac{6}{18}$. The discs, which could only be seen when the lids were held up passively, were found to be normal. On the attempt to throw a light into the eye, the lids closed down in spasms, and he resented the examination. He claimed that a piece of shrapnel had been removed from the left eye, but this was unlikely as there was no evidence of injury. He wore blue glasses, and had not attempted to read since the injury, though he was able to get about satisfactorily. The vision of the right eye soon became blurred with reading.

The history of the onset, together with a negative ophthalmic examination, was all that was necessary to establish the diagnosis of functional blepharospasm and functional amblyopia.

Before taking him to the ophthalmic room, I said to the patient, "Why were you sent here? This is not an eye hospital." He answered, "To see if anything could be done for me." I then asked him, "Are you certain that is the reason you were sent? Were you sent to have treatment or to be cured?" "Oh," he replied, "I was sent to be cured."

He was made to sit 6 metres from the Snellen box types, and beside his chair was placed a large farado-

galvanic battery. The left eye was completely blind, but with the right he could read $\frac{6}{18}$ very well, and succeeded in reading some of the letters of $\frac{6}{12}$ with considerable strain.

"You will be cured very quickly," I said. "This is a very rapid method." He began then to talk of the injury to the left eye, pointing to the scars on the left side of his cheek, but I interrupted him by saying, "The right eye will first be treated. You see normally with it, but your eye becomes easily fatigued, and the spasm of the lid makes your eye water. This will be overcome quickly. Now I shall apply a weak current of electricity to strengthen the eye, and after each application I shall ask you to read the line below the one you have already succeeded in reading." After the first shock $\frac{6}{12}$ letters from another part of the card were easily read, but $\frac{6}{9}$ was blurred. I said, "You are improving; that is much better. Now you will be able to read the lower one." It required, however, the application of faradism for two minutes before he could read $\frac{6}{9}$. The treatment was carried on in a similar way over the right lid, until he read $\frac{6}{9}$ without the slightest difficulty, and the spasm of the right lid had completely disappeared.

I then said, "Do you recognise the improvement? You can open your right eye without the slightest difficulty and read every letter on the vision card. The left eye will respond even more quickly to this treatment." The right eye was bandaged and

faradism applied to the left eye, and the patient reading $\frac{6}{60}$ after the first shock, I said to him, "You appeared to be afraid that there would be no return of sight in the left eye, but I do not doubt in the least that you will be able to see as well with the left as with the right eye." Again the electrode was applied at intervals for about five minutes, but there was no improvement, the eye was watering, and he was making every effort and indeed straining every muscle of the eye to decipher the next letters on the card. However, the spasm had disappeared from the lid. I then applied a stronger current over the supra-orbital notch, telling him at the same time to read on and on. After I had persisted with this for five minutes his vision returned to $\frac{6}{9}$ and some of the letters of $\frac{6}{8}$ were recognised. The bandage was then removed from the right eye and he was made to walk for five minutes "in order to overcome any eye strain," and told that when he returned the vision in the left eye would be completely normal. On his return, however, there was no further improvement, the pupils were markedly dilated, and again faradism had to be resorted to. The current was applied again to the left side of the forehead; in five minutes he was able to read $\frac{6}{5}$ on the vision card with R. and L. eyes, and there was no spasm.

This case required forty-five minutes' continuous treatment.

*Case C₃.—FUNCTIONAL SPASM OF
ACCOMMODATION*

PATIENT, 21 YEARS OF AGE. DURATION, 14 YEARS

The reason for publishing this case is that the patient has been carefully watched from childhood by competent ophthalmologists. A complete history of the case may be seen in the Ophthalmological Society's "Transactions," Vol. XXXVII., 1917, pp. 373-379.*

The following is an abstract of the case :—

At the age of five years, the patient had an occasional convergent strabismus, which turned into an occasional divergence at the age of thirteen. At sixteen, attacks of diplopia commenced, and at seventeen there was a constant divergence which was overcome for the time by tenotomising the left external rectus muscle. Diplopia persisted, but its character was changed. Suddenly an acute accommodative spasm together with a spasm of convergence developed. The patient then consulted a specialist in Paris, and on her return it was noticed that the variability of convergence was greater than on any previous occasion. It was also observed that there was a periodic spasmodic opening of the palpebral apertures of the two sides.

An operation was performed for the purpose of restoring the tenotomised left external rectus to its

* Mr. Leslie Paton.

original position. When the patient was under the anæsthetic it was seen that the visual axes, instead of being convergent, were parallel or slightly divergent.

In a week's time the patient was allowed to use her eyes again, and it was found that she preferred to use the right eye, and when fixing with it there was no spasm, but the left eye diverged. When attempting to fix with the latter, a rapidly developing spasm commenced, and at the same time the right eye wandered from a position of parallelism to one of extreme convergence. In a week's time, however, there was spasm in both eyes together with a marked degree of myopia, which was greater in the left than the right eye. This was overcome by atropine, and the patient showed a hardly noticeable convergence, but there was a definite diplopia which was not affected by prisms in front of the right eye. The diplopia, however, was diminished by prisms in front of the left eye. She began to use the left eye, and there was alternately divergence and convergence.

"In October and November, 1914, she was kept without atropine for four weeks. The convergence was as variable as ever, and it was noticed that there was a variability in the size of the pupils in a uniform diffuse light."

On January 20th, 1915, the spasm disappeared suddenly and definite divergence with crossed diplopia was manifested. The following March no

spasm was apparent on using the right eye, but spasm was observed when she attempted to use the left eye.

“ She went on more or less unchanged and using the right eye until February 19th, 1916, when the spasm came on again quite suddenly, and the divergence of about 15° , which had been present for over a year, was replaced by definite spasmodic variable convergence. A few days' treatment with atropine abolished the spasm, but she again reverted to the use of the left eye, and on forcing the attempt to fix with the right eye, spasmodic convergence at once commenced.”

In April she began to use the right eye only. On May 4th she began to use the left eye and has been using that eye, atropine being used in the left eye, since that time.

When I saw the patient she was using the left eye, which was dilated by atropine. She was unable to see the vision card at $\frac{6}{60}$. When the card was placed close to her, she could read some of the letters, but everything “went misty.” The right pupil showed a spasmodic rhythmical contraction.

On account of the dilated left pupil, I bandaged the left eye and treated only the right.

The patient was made to sit 6 metres away from the Snellen types. A faradic battery was employed. The pad electrode was placed over the upper dorsal spines and a key electrode attached. When she was asked if she could see any of the letters on the

vision card, she said she could not, and I noticed that, instead of her fixing her right eye on the card, the pupil had contracted, and it was obvious that her attempts at fixing with that eye were ineffective. She said, "Everything is misty. I believe I can see a card because I know it is there, but I cannot see anything else." Gentle faradism was applied to the closed lid, while I said to her, "You will be able to see the first letter quite distinctly after a momentary application of electricity." When the current was removed, she said, "I see a blur at the top, it looks a misty black, but I cannot say what it is." I reassured her that she would be able to see correctly what the letter was, but urged her to keep her eye fixed on the card which she had already seen. However, it required about twenty minutes of intermittent application to the closed lid before she finally read $\frac{6}{60}$. I observed that the eye was being focussed on the card, and the rapid contraction and dilatation of the pupil was subsiding. "Sometimes," said she, "I see the 'A' as a sort of a blur, and sometimes the letter becomes faint; at times I see nothing at all." Again I urged her to keep her eye fixed on the letter which she formerly saw, as I reapplied a slightly stronger current over the supra-orbital notch, the eye remaining opened. I said, "I shall keep the current on until you see the letter distinctly." In the course of five minutes she said that the "A" was distinct and I continued holding the electrode to the notch until, three

minutes later, I could see that the pupil was not contracting. "I can see the next two letters," she suddenly exclaimed, as she read them correctly, the vision at this time being up to $\frac{6}{36}$. I allowed her to rest her eye for five minutes, and afterwards she said the card appeared to her to be blurred again. "I know what the letters are, but I do not see them as distinctly as I previously did," she said. The alternate contraction and dilatation of the pupil reappeared, and it was obvious that her eye was not fixed on the card. A vision card with different letters was substituted, and she said, "Oh, it is as hard as ever—I can see nothing at all," when I asked her to read it. I said, "I shall gradually succeed in restoring the sight; that you have seen the three letters indicates to me a complete return of vision. The current will be applied for one minute, then two minutes, and so on, and when you do not make rapid enough progress, I shall double the length of time of each application." I recommenced by stimulating for one minute, by faradism, the right supra-orbital nerve, telling her at the same time to look at the vision card and keep her eye fixed on it. The patient's father was in the room and he frequently changed the card, so as to prevent the possibility of her memorising the letters. There was no return of spasm of the pupil, and in the course of two hours the patient was fixing her eye on the card. The vision at this time was $\frac{6}{24}$. I then stimulated the eye over the closed lid, applying

strong shocks, but none of them was sufficient to cause the patient distress. The current was applied at first twenty seconds, then forty seconds, and so on, being doubled each time. It was not until the current had been applied continuously for three minutes that the patient was able to read $\frac{6}{18}$, at first dimly, then quite clearly. The eye at this time was not wandering from its central axis, but remained quite fixed, and she was focussing satisfactorily. This process of treatment was continued, sometimes the eye over the closed lid was stimulated, and at other times the supra-orbital notch was faradised, until, in four hours from the commencement of the treatment, the patient could read $\frac{6}{9}$ with the right eye.

There was an interval of an hour before beginning the second stage of the treatment.

When the patient returned at the end of that time she could read the $\frac{6}{9}$ without any difficulty, and appeared quite pleased. I had intended to treat the opposite eye, but it was still dilated, and there was no reaction to light or accommodation, so it was again bandaged.

The right eye was apparently fixed in a spasm for reading at 6 metres, for when I placed the card close to the patient all letters were blurred. I attempted for one hour by constant persuasion and faradism to make her read the vision card at one foot distant, but was unsuccessful, and on placing the card back at 5 metres she was unable to see

any of the letters, the card again appearing blurred to her. It required about ten minutes to restore the vision ($\frac{6}{9}$) I had previously succeeded in getting.

I again applied continuously a mild current of faradism to the right forehead as the father of the patient brought the card forward gradually, then gradually increasing his distance away from her; the approach was about $\frac{1}{2}$ metre each time, and when she succeeded in reading all the cards at $\frac{5}{9}$ she was tested at $\frac{6}{9}$, and the cards were not brought closer to the patient until she succeeded in reading them both close and at a distance. In the course of an hour she was able to read the card at $\frac{6}{9}$, and also at $\frac{5}{9}$. The pupil was contracting without spasm as the card was brought closer each time.

I then gave her large type advertisements to read. At first she had difficulty and the use of faradism had to be constantly resorted to. The vision cards were again changed, and after she had read a few lines of advertisement she was made to read the vision card at 6 metres. Tests of this kind were constantly employed while she read smaller and smaller sized type of a magazine.

After six hours from the commencement of the treatment she was able to read without difficulty the smallest sized print of an ordinary magazine at 1 metre distance and also letters of the card 6 metres distant. The pupil was contracting normally and the eye movements were carried out satisfactorily.

The patient returned to her employment, using the right eye, the left one being bandaged. She is a typist and returned to duty the following day.

Two weeks later she returned, a shield over the left eye, and stated she had carried on her occupation without any discomfort, using the right eye.

CHAPTER IV

HYSTERICAL MONOPLÉGIA

Illustrative Cases: FLACCID WRIST DROP—RIGID WRIST DROP—FLACCID MONOPLÉGIA OF THE UPPER LIMB—RIGID MONOPLÉGIA OF THE UPPER LIMB AND HEAD DROP—FLACCID FOOT DROP—RIGID FOOT DROP—FLACCID MONOPLÉGIA OF THE LOWER LIMB—RIGID MONOPLÉGIA OF THE LOWER LIMB.

HYSTERICAL monoplegia may occur suddenly, and is either complete, when the whole limb is paralysed, or incomplete, when only the movements at certain joints are affected. The incidence of the paralysis in all cases of hysterical monoplegia is more or less the same, *i.e.*, it involves all the movements at a joint or joints equally. Again, it is the rule that loss of function affects all joints distal to the most proximal one involved. If, for example, movements at the shoulder are abolished, one will expect to find movements at the elbow, wrist, fingers, and thumb similarly affected. In organic disease the distribution of the paralysis is different. A lesion, for

instance, of the fifth cervical nerve will render the shoulder and elbow more or less useless, but power will be retained at the wrist, fingers, and thumb, and the ability to adduct the shoulder and extend the elbow will be present.

When in hysterical conditions the movement of a part is completely lost, the paralysis may be described as flaccid in type, which differs in no respect from the "paralysis" one assumes when allowing a normal member to "fall dead."

A monoplegia in which some power is present may be described as rigid, for efforts at passive movement, as a rule, meet with resistance. This rigidity, however, is not similar to the spasticity found in organic disease, but is due to spasmodic contractions of antagonistic groups of muscles. Patients suffering from rigid monoplegia of hysterical origin, when ordered to perform movements in the part affected, appear to exert an increased effort in all parts of the body more than in the affected part. In many cases when attempts at voluntary movements are made, the head is turned away, the eyes closed, and the musculature of the body put into a state of tension. Although the disorder when first observed appears to be localised in a particular part, one is led to the view that there is a general attitude of negativism or antagonism, indicating the state of mind of the patient. A similar condition is also met with in the flaccid types of hysterical monoplegia during the process of treatment, for as soon

as any movement returns, this rigid state is displayed in spasmodic movements. In nearly all cases of hysterical monoplegia when movement is present it is characterised by contraction of antagonistic groups of muscles. Indeed, rigid monoplegia may be taken to mean a form of paralysis which has advanced from the initial state of flaccidity. " I was given massage and electricity and got some movement back " is frequently stated by patients affected with the rigid form of paralysis.

A certain similarity seems to occur in all forms of hysterical paralysis ; the voice returns first in a stammer (interrupted phonation), the arm or leg action in spasmodic movements (interrupted voluntary action). Of course, one cannot overlook the fact that in both of these conditions stammering or rigidity may be the primary manifestation of the disturbance, but the question might well be asked, " Is hysterical paralysis a physical manifestation of a general negativism ? "

When commencing treatment of these cases I recognised two factors : first, that the condition was a curable one, and secondly, that a cure could be effected with one treatment. But I often reproach myself when I recall to mind the patients who needlessly suffered under a method born of one idea — compulsion. The patients to whom I here refer were those treated by very strong faradism applied by means of a wire brush, the idea being to " break down the resistance."

This method, however, had the advantage of making a possible recurrence less likely.

The next method, less distressing than the former, consisted of persuasion assisted by faradism administered by means of a roller electrode ; the idea being to restore the feeling in the part and assure the patient that power would immediately return when this was accomplished.

The method finally adopted consisted of demonstrating to the patient that movement was present in the affected part. This was done by faradising the skin over a motor nerve-point. If the loss of power was in the foot, the external and internal popliteal nerves were stimulated ; if in the hand, the musculo-spiral, median and ulnar nerves were stimulated by faradism. A strength of current sufficient to produce a movement at the joint was all that was necessary. If, however, previous suggestions had not been forcible enough to make the patient interested in the prospects of a rapid recovery and movement was not forthcoming, faradic stimulation was increased until his attention was obtained and movement voluntarily performed. When that was accomplished the current was gradually diminished. The patient seeing the movement of the part was assured that any interruption or blocking of nerve impulse was overcome, and that the member could be kept in a flexed or extended position after the electrode was removed, the current being gradually diminished until it was finally shut off. This

method in most cases yielded excellent results, but if no response was forthcoming in five minutes, then compulsion was resorted to.

The occurrence of anæsthesia can, as a rule, be demonstrated in all these cases ; it is generally limited to a line drawn round the limb and does not correspond to any peripheral nerve or root distribution. What the nature of this sensory loss is, is difficult to say ; it is certain that not only the occurrence but the distribution of the anæsthesia corresponds to a definite area supplied, as one might say, by the mind. To give an illustration : I have asked a great number of non-medical individuals the following question :—" Supposing you had loss of power in your wrist, fingers, and thumb, would you, or would you not, lose feeling ? " The answers to this question were invariably that loss of feeling would be also present. Further, I asked, " In such a case where would the limits of the loss of feeling be ? " The answers varied as to the extent of anæsthesia, but did not vary as to its limitation to a line drawn round the wrist, forearm, elbow, or shoulder. The majority of the answers I obtained intimated that the loss of feeling would be limited on the hand extending to a line drawn round the wrist. Just as the anæsthesia is of the type that the patient expects it to be, so is the loss of power.

I am still, however, in doubt regarding the suggestive factor often assigned in " hysterical " anæsthesia, for I have pricked patients with

“supposed” anæsthesia of the legs during sleep and they have not wakened, but as soon as I pricked a part in which no loss of feeling was charted they immediately wakened with a start. Loss of sense of position and of appreciation of passive movement is generally admitted by these patients.

The faradic current is always felt if persevered with, in spite of the claim of the patient to the presence of intense anæsthesia in the part.

An exact diagnosis must first be established in these cases, and as wounds are frequently present in the neighbourhood of a nerve, the condition may be mistaken for a nerve lesion.

Paralysis due to injuries, and most commonly mistaken for hysterical monoplegia, will be discussed in the following order :

1. Musculo-spiral.
2. Brachial plexus.
3. Sciatic.
4. External popliteal.
5. Lumbo-sacral cord, cauda equina, hemisection of the cord.

1. *Paralysis of the wrist due to a complete lesion of the musculo-spiral nerve* presents the following features :—

(a) When the arms of the patient are held out in front of him with both wrists allowed to fall loosely, the angle formed at the anterior surface of the forearm is not the same on the two sides. Generally in early cases the angle is more

acute on the affected side, and indeed the hand may form a right angle with the anterior surface of the forearm. This is due to overaction of the flexors, the extensor muscles being paralysed and emptied of tone. In old-standing cases, however, in which splints have been used, the joint may be so fixed that no angle whatever is formed.

In hysterical wrist drop the unaffected hand falls at the same angle as the affected one.

(*b*) Power of flexion of the wrist is not lost.

Flexion and extension are similarly involved in the loss of power in the hysterical type.

(*c*) There is no power to extend the fingers and thumb, but when flexion of these parts is carried out, the wrist becomes more and more flexed as this movement is persevered with, owing to the absence of the synergic action of the extensors of the wrist.

In hysterical paralysis, if any power is present, there is no alteration in the position of the wrist when flexion of the fingers is attempted, and movements of flexion and extension of the fingers are equally well performed.

(*d*) When the forearm is flexed and held in a position between pronation and supination against resistance, the supinator longus muscle is not seen to contract.

It always contracts equally with its fellow in hysterical wrist drop.

(*e*) There are, as a rule, no spasmodic contractions of antagonistic groups of muscles when the patient is

ordered to perform a movement of the wrist, fingers, or thumb.

Spasmodic movements are manifested in antagonistic groups of muscles in hysterical wrist drop if the patient is ordered to perform movements.

(f) Wasting of the triceps and supinator longus, together with the extensors of the wrist, fingers, and thumb, occurs in the organic type.

There is no wasting as a rule, in the hysterical type.

(g) Electrical reactions show a partial or complete R.D., or, if the electrical reactions on the two sides are compared, there is a diminution to faradic excitability on the affected side.

Electrical reactions are normal in hysterical wrist drop.

(h) Anæsthesia if present is in the radial distribution.

Hysterical sensory loss is, as a rule, limited to a line drawn round the wrist or forearm.

(i) The supinator jerk and triceps jerk may be absent.

There is no alteration in the arm jerks in hysterical monoplegia of the wrist.

2. *Paralysis of the upper limb due to brachial plexus injury, particularly if caused by violent traction*, is manifested by the following signs :—

(a) The limb is extended throughout, and normal flexion at the elbow disappears, the limb falling by its own weight. The forearm is pronated and the

fingers slightly flexed and drawn together ; the thumb is adducted and the hand has a long, thin appearance.

In the hysterical type the normal flexion of the forearm is not, as a rule, altered, but if it is, flexion at the elbow is possibly a little more pronounced than usual. The forearm falls midway between pronation and supination. Such a position may be readily demonstrated when one assumes a paralysis of one's own arm.

(b) Wasting of the whole arm with trophic changes may be a prominent feature.

Wasting is not, as a rule, present in hysterical monoplegia of the arm.

(c) Electrical reactions may show reaction to degeneration in the muscles affected.

In hysterical paralysis the electrical reactions are normal.

(d) Anæsthesia is present in the upper limb with the exception of the superior part of the shoulder which is supplied by the fourth cervical root, and a small zone on the inner and upper aspect of the arm supplied by the second and third dorsal roots.

In hysterical monoplegia of the upper limb, anæsthesia when demonstrated is limited to a line drawn round the root of the arm or below it and does not correspond to any sensory root distribution.

(e) If due to violent traction, the first dorsal root

may be "pulled out," and when this occurs the oculo-pupillary syndrome of the cervical sympathetic is manifested.

There is no affection of the pupil or palpebral aperture in the hysterical type.

3. *Foot drop due to a lesion of the sciatic nerve* presents the following features :—

(a) The position of the foot is that of talipes equinus. When the feet are allowed to hang loosely over the end of the bed the affected foot drops more than the unaffected one.

In hysterical flaccid foot drop the feet are flexed equally on the two sides when at rest.

(b) There may be loss of power in the hamstring muscles.

In hysterical foot drop, flexion and extension at the knee are equally impaired if that joint is at all involved.

(c) Wasting of the muscles of the leg may be a prominent feature.

No wasting occurs in hysterical foot drop.

(d) Electrical reactions may be those of complete or partial R.D. with possible involvement of the hamstrings ; or if the electrical reactions of the two sides are compared the affected side will show diminished faradic excitability.

In hysterical foot drop the electrical reactions are normal.

(e) Anæsthesia is never present over the inner surface of the leg (internal saphenous distribution).

Anæsthesia is usually present, limiting itself to a line drawn round the ankle, leg, or knee, in the hysterical type.

(f) The ankle jerk and plantar reflex may be inactive.

There is no characteristic alteration in these reflexes in hysterical foot drop.

(g) The hollow below and behind the internal malleolus and in front of the tendo achillis border is less marked than on the unaffected side. It has a filled-in appearance.

In hysterical paralysis this hollow is present equally on the two sides.

4. *Foot drop due to external popliteal injury* presents the following features :—

(a) The position of the foot is one of talipes equinovarus due to contraction of the tibialis posticus, the extensors of the foot and toes being paralysed.

In rigid hysterical foot drop there may be inversion, but the affected foot is not dropped more than the unaffected one.

(b) Power to flex the foot is present.

Flexion and extension of the foot are similarly involved in the loss of power in hysterical foot drop.

(c) Wasting may be present in the anterior tibial and peroneal groups of muscles.

Wasting is not, as a rule, detected in hysterical paralysis.

(d) Electrical reactions may show R.D. in the anterior tibial and peroneal groups of muscles ; or a

diminution to faradic excitability as compared with the unaffected side.

Electrical reactions are normal in hysterical foot drop.

(e) Anæsthesia if present is limited to the external popliteal cutaneous distribution, leaving out the plantar surface of the foot, internal surface of the leg, etc.

Anæsthesia in the hysterical type is limited to a line drawn round the ankle, leg, or knee.

(f) Ankle jerk and plantar reflex are present and normal in external popliteal injury and, as a rule, in hysterical foot drop, and therefore their presence does not aid in establishing a diagnosis.

(g) The hollow below and behind the internal malleolus and in front of the tendo achillis is more scooped out than its fellow of the opposite side.

The hollow on the two sides is equal in hysterical foot drop.

5. In hysterical monoplegia of a lower limb, movements at the hip, knee, ankle and toes are similarly involved in the loss of function. There is no wasting and the electrical reactions are normal. The sensory loss generally extends from a line drawn round the root of the thigh. The reflexes are normal.

Unilateral lesion of the lumbo-sacral plexus or cauda equina is very uncommon. However, if such a lesion occurs, there is wasting, electrical reaction of degeneration is to be expected, and

there may be anæsthesia of a segmental distribution. The leg reflexes are diminished or absent.

Hemisection of the lower dorsal or lumbar cord is a rare occurrence in those regions. Such a condition would produce the Brown-Sequard syndrome.

Case Dr.—FLACCID WRIST DROP

PENSIONER, 23 YEARS OF AGE. DURATION,
14 MONTHS

Some of the carpal bones in this man's left hand were crushed by a kick from a horse at Mametz Wood when he was a driver in the R.G.A. A splint was applied but its use suspended a fortnight later at a hospital at Camières. Three months later he was transferred to London, and he was discharged from the Army seven months previous to my seeing him.

An examination at the National Hospital revealed a complete loss of function of the left wrist, fingers, and thumb, with anæsthesia of the left hand limited to a line drawn round the wrist. The condition was diagnosed as hysterical.

An interesting fact associated with this case was that another patient, with signs of division of the posterior interosseous nerve, came into the hospital on the same day. Both had been previously informed that they would be cured, and they appeared to be anxious for treatment to be given them.

When the patient was presented for examination I said to him, " You are more lucky than your friend. You see I have sent him away because his condition could not be improved by the administration of electricity, whereas the power of your hand will recover after the application of electricity to certain parts of the arm and hand. I know you have had electrical treatment, but it has not been administered properly. You will recover completely in one treatment if you are willing to undergo it, but when once the treatment is started you will not be left until there is complete restoration of power. Do you wish the treatment ? " He answered that he did, and I said to him, " You must not talk during the treatment. I want you to perform the movements I order. I am prepared to stay with you for hours, even all night if necessary, and you must remember that you are not to talk. Remember, talking will not be permitted while I am treating you. If you understand that, I will proceed immediately to treat you."

He was taken into a room alone, and I remarked as I was arranging the apparatus, " Your friend must be very disappointed, but I never attempt to treat a patient in this way unless I am certain of a rapid recovery. He is to be pitied, for I believe him to be as anxious to recover as you are. His disappointment will be great, but your happiness at the prospects of recovery, which is certain, will be even increased."

A faradic current was applied by means of a key electrode to the extensor muscles of the wrist until the wrist had been in a position of extension for about fifteen seconds. Then the electrode was removed. "There is no electricity going through your arm now," I said; "the hand is extended by your own power. You will now be able to hold the hand in that position until I order you to let it fall again." He obeyed the order. In a minute's time he was ordered to "bend the hand" and "keep bending and straightening the hand." This he succeeded in doing, but from the beginning of the return of power he was moving nearly every muscle in the body, putting forth considerable effort, holding himself in a condition of tension. "You do not need to move your body in order that your hand may move," I said, "relax yourself; allow your body to loosen, look at your hand and make movements at the wrist only." The condition of tension, however, continued. Flexors of the fingers were next stimulated, and it required about ten minutes' persistent faradism with the roller electrode to produce even the slightest degree of voluntary flexion at the fingers, although during this time he was constantly urged to "bend the fingers to the palm." The patient was then ordered to "make a fist," but did not obey. A fist was made passively and held firmly by my left hand as I applied the faradic current by means of a roller electrode up and down the upper limb. When I relaxed my hold, the hand

opened slowly. Making a fist again in a similar way, I applied very strong faradism to the axilla for five minutes, while I said to the patient, "I am prepared to stay with you until you are cured; the strength of current will be increased every five minutes." Just before removing the electrode I asked, "Do you think you will be able to hold your hand in that position now? After your having all that electricity I know you will be able to."

On removing my hand, his hand remained clenched, so I discontinued the use of faradism for a time. When I ordered him to open and shut the hand the movements were associated with contraction of antagonistic muscles and were slowly performed in spasms. "Open and close your hand very quickly," I ordered. This he did satisfactorily, closing his hand first over my hand, then over three fingers, then over two, and, finally, over one, the power becoming rapidly stronger; the condition of tension of the body somewhat subsided and the contraction of antagonistic muscles of the forearm diminished. He was then ordered to lift a chair. This he did with considerable effort, and finally succeeded in raising the chair above his head with the affected hand. I again applied the roller electrode, using very strong faradism up and down the forearm quickly, urging him to open and close his hand over my two fingers. When he began to talk, I quickly interrupted him, reminding him that he must not talk, and that

recovery would be complete in a very short time. He was warned also that whatever was the duration of treatment he would not be permitted to leave me until there was complete return of power. "Make every effort to move the hand without moving the body," I said. He persisted in making a great effort with the body, but this was soon overcome by the administration of faradism to the bend of the elbow. Again he was told to lift the chair; this time he succeeded in lifting it easily above his head. I said to him, "Are you not pleased that the use of your hand has been restored?" He simply replied, "Yes, sir," appearing to be little if at all concerned.

When he was made to handle me objects of various sizes he did so at first awkwardly, testing the performance of the movement with the right hand, and then carrying out the movement with the left. Difficulty was experienced by the patient when taking hold of small articles, but with ten minutes' practice he was able to pick a pin from the floor with his left hand without undue effort. When putting on his coat he adjusted it by using the left hand. The herculean effort had disappeared.

This patient was given one hour's continuous treatment.

Case D₂.—RIGID WRIST DROP

PRIVATE, 24 YEARS OF AGE. DURATION,
6 MONTHS

Both hands of this patient were frostbitten at Albert when he was driving with the Garrison Artillery. The right hand became swollen and cyanosed ; and, later, a lump appeared in the right axilla. A few days later the right thumb became septic and an operation for the removal of pus was performed under anæsthesia at Rouen.

A month later he was sent to England.

On his admission to the National Hospital the right hand was seen to be useless, but there was no evidence of any infection. The right hand and forearm were rather tremulous ; the fingers were flexed at the metacarpo-phalangeal articulation and very slightly flexed at the phalangeal joints ; the thumb was adducted and extended at the interphalangeal joint and flexed at the metacarpo-phalangeal articulation, so that its tip was approximated to the distal joint of the index finger. The fingers were slightly separated. There was no movement in the wrist, which was held in a spasm between flexion and extension. On attempting to move the affected parts the patient made grimaces with his efforts. A relative sensory loss to pinprick could be made out in the hand and forearm up to a line drawn round the elbow ; and there was a complete loss of the

sense of position and of appreciation of passive movement in the parts affected. There were no signs of organic disease, although the condition had been previously diagnosed as tetanus.

This patient was admitted the same day as the patient Case D6, who had been treated and sent back to the same ward, and I thought that he appeared to be curious to see the result of treatment on himself, so I said to him, "I suppose you wish to be cured too; it will take a very short time to produce a complete recovery in your case." "Oh, you have made a mistake, sir," he replied; "I have been sent to this hospital to have my hand examined. It is a case of tetanus and not at all similar to the condition you have just treated. After you have examined my hand I wish to return to my former hospital; my clothes are there and I was instructed to return. I do not wish to be hypnotised—hypnotism will never cure tetanus, it has been tried already."

He appeared to be desirous of returning to his former hospital and complained that the sister of the ward would not permit him to do so. I interrupted him by saying, "I do not propose to listen to all this nonsense; whether you came for treatment, or to be examined only, makes absolutely no difference to me. Your hand has been examined already and I am satisfied as to the nature of your disorder, and therefore do not hesitate to assure you that the use of your hand will be restored if you so wish. If you

insist on returning to your former hospital you may do so, but I shall be in a position to accuse you of malingering. In order that you may understand what I mean by malingering I shall speak plainly to you. You are assuming a paralysis of your hand, so that it will be the means of preventing your return to active service. If you do not accept the treatment I shall be in a position to accuse you plainly of a grave military offence." The last sentence I repeated as he was about to leave me. He returned and said, "Do you mean to accuse me of such a thing, sir? I am not a patient here. I wish to return to my hospital." I replied, "I do not wish to hear what you intend to do. You have your choice to go or stay." Then he asked, "Is the treatment hypnotism?" and I answered, "I have no time to discuss methods of treatment with you; if you leave me you are undoubtedly shamming." He asked, "How long will the treatment take?" "That all depends upon you," I replied; "you will be cured as soon as you release your claim to your supposed disorder." "But," he said, "I am not shamming." "I am very glad indeed you are not," said I. "Then you propose submitting to the treatment?—of course you do." "Yes, sir," he said, "I want to have the use of my hand again."

He was taken to the exercise room and mild faradism was applied up and down the arm by means of a roller electrode, during which time he

was ordered to open and close his hand. When he did not make satisfactory progress I increased the strength of the current, refusing to listen to anything he had to say ; all attempts at speaking being met with, " I do not wish to hear what you have to say—move your hand," etc.

After persisting ten minutes with faradism the use of the hand was completely restored.

*Case D₃.—FLACCID MONOPLÉGIA OF
THE UPPER LIMB*

DISCHARGED OFFICER, 26 YEARS OF AGE.
DURATION, 2 YEARS

This patient received a gunshot wound of the right arm in France, a piece of shrapnel perforating the inner and outer borders of the triceps, in the upper third of the arm. There was still a slight discharge of pus from a sinus when I saw him. The right upper limb was useless and there was a slight sensory loss from a line drawn just below the shoulder joint, but no signs of organic disease.

The forms of treatment he had previously received consisted of faradism, anæsthesia, and hypnotism. Psycho-analysis also had been tried.

His first remark was, " Doctor, my arm is paralysed. I have had every variety of treatment. I have been hypnotised, and also almost electrocuted. For the last year I have been treating myself with faradism and have succeeded in restoring the feeling to the

arm. I hope your treatment does not consist of electricity. The power will return to the arm in its own time ; I cannot say it is paralysed because I feel life there. The defect does not lie in the power of my arm, but in the power to use my arm. It appears to me that I have forgotten how to use it, and the disorder has existed so long that the limb does not seem to be part of me. Nearly fifty doctors have been interested in my case ; some have told me the paralysis would be permanent and have advised operation ; indeed, one recommended that the limb should be amputated. But I have always been under the impression that the power would be restored some time. I have an idea that you employ electricity, but as I have said before, it does not answer the purpose." " You are very well educated and have a keen insight into your condition," I interrupted, " but you are mistaken in one thing which I shall demonstrate and explain when I examine you again, viz., in your claim to the return of feeling. Sensation has returned, but there yet remains a considerable difference between the two sides." When he was assured of the diminished feeling in the affected arm, the electrical reactions were tested. During this examination he was urged to perform movements at the shoulder, but no response was made. In the course of half an hour he said, " You believe me now that electricity is of no use in my case," and I replied, " I believe no such thing ; electricity applied in the proper way will restore the

loss of power. The treatment has not yet commenced."

Unfortunately, I was unable to carry on the treatment that day, so had to leave him, but I made arrangements for him to return next day. "I am very sorry you have taken so much trouble, but you cannot blame me; you know of my previous experiences with faradism." This he said as he left me; his patronising demeanour was amusing, but I made no other comment than to inform him he must return the following day to be cured.

When he returned he obviously retained a feeling of pity for me, as he raised his left hand, expecting to shake my hand. But I did not notice it. He began to talk immediately, assuming a superior air about his condition. He also spoke of chemistry and electricity, with which he appeared to be familiar. I did not interrupt him, but as he continued speaking I could see that he was becoming confused. This I interpreted as being due to the fact that I did not speak to him. In the course of five minutes I interrupted him by saying, "What university degree do you hold?" He hesitated for a time, but finally said, "Doctor, there were some subjects I could not learn, and on that account I was not allowed a graduation certificate." "You are very clever indeed," I said; "to cure you I have only to appeal to your intelligence. It is quite obvious that you excel in the study which appealed to you, and after all it is much better to understand one

subject thoroughly than many subjects superficially. That you excel in chemistry is a fortunate thing for you and for me, particularly as your present condition can be explained on the hypothesis of some chemical change acting on nerve structures. The cause of such a condition you may be able to work out some time later, but not now ; the treatment I understand thoroughly. You have studied physiology, and, of course, you know that the left side of the brain controls the right side of the body.” “ Yes,” he said, “ I knew that when I was at school.” “ That is fine,” I said ; “ you only need to understand the principles of this treatment in order to recover quickly. In fact, the recovery will depend altogether on your knowledge of the structures concerned in your disorder.” I then drew a rough diagram of the brain, marking the left motor area, and printing in large letters the arm area. When that was finished I said, “ There is a break, no doubt due to some chemical disturbance, in the motor pathway from the arm area to the nerves of your arm ; a flow of current must be established at the base, which is the cortex. As soon as you say you understand the idea I shall demonstrate this to you.” He replied, “ Oh, yes, I understand it thoroughly,” as he attempted to explain the chemical change taking place in the nerve, but I made him stop talking. Then I marked out the arm area, on his scalp, with blue pencil, expecting at the same time to mystify the patient, saying (not directly to him, but loudly enough for

him to hear me), " You understand enough about electricity to know that it will transmit an impulse from the brain to the arm if stimulated in the proper place. I shall apply a small electrode, giving you short shocks to the area already marked ; the impulse will be transmitted to the arm and you will move it."

Before applying the faradism I said to the patient, " I warn you not to speak ; do as I tell you." A key electrode was then applied to the marked area, a very mild current being employed. He appeared to be quite excited and his body began to shake. After three short shocks I said abruptly, " Move your shoulder ; hurry, move it quickly." The arm was abducted slowly and I repeated, " Elevate your shoulder, hurry." He succeeded in doing this, and I applied more shocks to the same area as I said, " Lift the shoulder ; higher, higher, higher. You have proved to me that you understand the method ; the movement has returned, but not completely ; it must all come back." I discontinued the use of the faradism, but urged him to make further efforts at the shoulder. " The current has gone through the break," I said, " and of course all movements will be easily performed now at the shoulder, wrist, and fingers. Now demonstrate to me by making all movements at these joints, so that I may see that you understand the method." This suggestion was readily accepted. In ten minutes he was able to lift a heavy weight with the right hand, and in one hour could raise himself from the floor by means of

a ring attached to the ceiling, using the right hand alone.

Case D4.—RIGID MONOPLÉGIA OF THE UPPER LIMB AND HEAD DROP

PRIVATE, 32 YEARS OF AGE. DURATION,
5 MONTHS

When proceeding from the second to the third line of German trenches at Vimy Ridge, this patient received a bullet wound in the back. The arm instantly became useless and the head fell to the right side. The bullet entered just to the right of the mid line between the third and fourth dorsal spinous processes and was removed at the C.C.S. as it appeared superficially at a point just above the junction of the inner and middle third of the clavicle. He was sent to England a few days after the injury.

On his admission to the National Hospital this emotional Irishman's head was dropped so that the ear almost touched his right shoulder and the arm of the same side was useless. There was a spasm of the right side involving muscles of the right arm and right side of the neck. Anæsthesia was present in the right arm, right side of the neck and face. Signs of organic disease were not present.

After he had been examined he was taken to the exercise room, where I said, "You have been sent here so that you may have your arm and head

cured. You must be very tired of walking about in such an attitude. A useless right arm is also quite an annoyance in itself. Five months is a long time for such a disturbance to exist, and it has been five months of misery, I am sure. I would sympathise with you if it were not for the fact that you will be cured in an hour. Imagine, one hour from now you will be your old self again ; it is something to be grateful for, is it not ? One more hour of clouds and then all the rest sunshine. I can imagine I hear you say, ' Yes ! it was worth experiencing the clouds so that I might enjoy the sunshine.' That is no doubt what you would say if I were to allow you to speak to me, but you understand that you are not to speak. You are simply to sit down and watch the power returning to your arm. Your loved ones at home will be happy to receive a letter from you to-morrow telling them that you are fit to be seen ; possibly even now you are anxious to write that letter, but I think it best to wait so that you can use your right hand for that purpose. They will at once see the difference in the writing and they will be as happy as you are. I can see already that you are filled with joy at your prospects, which are certain."

Gentle faradism was applied for a few seconds to the right axilla by means of a roller electrode. He became frightened and rose to his feet. I told him that electricity was the form of treatment to be used and it would be necessary for him to remain in his

chair to receive it. The electrode was then applied to the deltoid, a stronger current being used this time. With the arm in the abducted position I said, "Do you see what the treatment has already done? It will, however, do more; the use of the arm must be completely restored." I left the electrode in that place for about a minute, and just before removing it said, "Keep your arm out," but it fell slowly, assuming its former position. I again abducted his arm passively and said, "Keep your arm out; do not allow it to fall." It was necessary to repeat this several times before I succeeded in persuading him to keep the arm abducted. Then I said, "You will now quickly bring the arm out and in," but the arm resumed its former useless position at his side. He became rather drowsy and inattentive.

"You are a very slow man," I said; "but it is my fault. I told you to sit down while the power came back. If you fall asleep there will be no way of your knowing what occurs. You must keep awake and I shall see that you do. Remember, you are here to recover the lost power to-night. You must not sleep."

A very strong current was next applied by means of a wire brush, and although he resisted somewhat he became more attentive, and I said, "The current you are receiving now is very weak, but will be increased if you do not make better progress." "Oh," he said, "I am fed up"; and I replied, "I do not want to hear about that, I want you to move your

arm. There are two methods with which power may be restored, viz., persuasion and compulsion. I have attempted to persuade you to use your arm, and the fact that no movement has returned indicates to me that you prefer the latter method. Every soldier knows what compulsion is, and you will never forget it if I have to resort to it. Now when I put your arm in any position you must hold it yourself in that position and keep it there until I tell you to move it." I then abducted the arm and he succeeded in keeping it in that position. Then I ordered him to perform all movements at the shoulder. Slow, jerky movements were performed at first, and it was necessary to resort to strong faradism frequently. In ten minutes, however, the movements were much stronger. Placing him in front of a mirror, I ordered him to "Raise both arms over your head quickly." This he did, and the head was raised at the same time. I said, "Your head is no longer on your shoulder, but is in its correct position; now let your arms fall very steadily and slowly to your side and keep your head in its present position." The "head drop" was corrected in this way.

He was then told to perform before the mirror such movements as "clap your hands together," "strike out," etc. These movements were eventually performed, but faradism had to be resorted to constantly for two hours.

Power had returned fairly well at the shoulder

and elbow. Up to this time no attention had been given to the hand. On his being ordered to make a fist, however, he did so, although there was a considerable contraction of antagonistic muscles. This, however, was overcome to a marked extent by faradism applied by means of a roller electrode up and down the forearm. I then told him to make a fist and punch out as he watched himself perform these movements in a mirror. He was becoming very tired, but he was made to walk up and down the room performing movements to order. In a quarter of an hour he was less tired and mentally quite bright and even became entertaining.

After three hours' continuous treatment he walked with head erect. He was also able to lift heavy weights and write with the right hand.

Case D5.—FLACCID FOOT DROP

PRIVATE, 21 YEARS OF AGE. DURATION,
9 MONTHS

During the advance on Loos this private was "blown up" with his platoon and taken prisoner. He escaped the same evening and returned to the trenches, but walked with difficulty. The following evening when making an attack he was wounded in the left arm by shrapnel. The arm fell lifeless and he was dazed. An officer gave the warning that the Prussian Guards were advancing; he got up and made his way to a communication trench, where he began

shaking ; the left leg went " dead " and powerless and he became deaf. Hearing came back in about an hour. A fortnight later he was sent to England, where he received electrical treatment to the left arm and leg.

Nine months later there was no power whatever in the left foot. Anæsthesia was noted over the leg to a line drawn round the knee. There were no signs of organic disease in the leg, but there was a musculo-spiral paralysis on the left side.

When I told him that the power would quickly return to the foot he said, " I must have it cured ; I am tired of it." I said to him, " If you are certain you wish the use of the foot restored it will recover completely." " Does it take long ? " he asked. " Not long if you are anxious to recover," I answered, " but a very long time if you are indifferent. The length of time the treatment is to take depends upon you. By exerting every power and doing what I tell you to do you will recover very quickly. I know you are anxious to recover ; in fact you are more anxious than anyone I have yet seen." He then said, " What is the nature of the treatment ? Some men are cured by hypnotism. Do you hypnotise ? " " No," I answered, " decidedly not ; I have never hypnotised and do not intend to begin. My method is to explain to you each stage of the treatment as I apply it, and I am certain that recovery will take place because I know positively that the loss of power in your foot is not due to an incurable

disease. The loss of power in your foot, though real enough to you, is not recognised by me as a paralysed condition in the true sense of the word.

“ But I must assure you that there is power in the foot,” I continued, “ and how am I going to accomplish this ? The method is simple and in many ways similar to that you have employed when you were attempting to make someone disbelieve something you knew to be absolutely erroneous. Take a case in point,” I went on.

“ Your little brother has a dirty face. You tell him about it, but your word may be of little value to him. If he believes you, he will no doubt have the dirt removed at once. On the other hand, if he refuses to believe you, the more you argue with him the more convinced he will appear to be that you are wrong. But you have argued with him for some time and he becomes annoyed and antagonistic to you, and the result is that your goal is more distant than ever. A new idea at last strikes you. You procure a mirror and tell him to look at his face for himself, but alas ! he is too antagonistic and even closes his eyes when you produce it. You have completely failed in your attempt to persuade him. The next time your little brother’s face is dirty you will not tell him of it, but more likely say, ‘ Willie, I want you to look at something,’ and you will produce a mirror ; the result being that he will see for himself.”

I continued by saying, “ Now, I do not propose to

tell you that you have power in your foot. You will not believe me after nine months of what you think to be paralysis. I shall not argue with you, but I shall produce the mirror so that I can prove to you your foot has a dirty face. Do you understand ? ”

“ Yes, sir,” he replied, quite interested.

“ Now I purpose sending a current of electricity through a nerve behind the knee, which will result in drawing your foot up ; you will see it come up, and more than that, you will be able to hold it up after the current has been removed.”

I then applied a current sufficiently strong to produce extension of the foot for a few seconds, after which he voluntarily held the foot in a position of extension. “ Bend and straighten your foot,” I said. These movements were instantly performed.

He was then made to walk, and after ten minutes’ re-education he walked normally.

This case received twenty minutes’ treatment.

Case D6.—RIGID FOOT DROP

PRIVATE, 20 YEARS OF AGE. DURATION,
9 MONTHS

When this patient was in the trenches at Ypres a shell exploded on the parapet, and he was rendered unconscious. The following day he awoke at a hospital at Boulogne “ shaking all over ” and stammering. His legs felt numb and he was unable to move the right foot. A fortnight later

he was transferred to England. The left foot was stiff and inverted. The inversion was corrected by a plaster of Paris case, which was removed some two months later.

On his admission to the National Hospital the right foot was inverted and flexed and it was impossible to correct the position passively. There was diminished sensation to pin-prick in the left foot extending up as far as a line drawn round the middle of the leg. He also stammered. There were no signs of organic disease.

It should be mentioned that previous to enlistment the patient was a medical student.

After an examination was made I said to him, "If you intend continuing your medical course it may be profitable for you to understand thoroughly your condition, for when you are in practice you will meet many cases of patients suffering from a similar disease to yours. It is often found among women who have been subjected to worry, strain, or shock. You must first of all understand that loss of feeling such as you have in your right foot is mental in origin, because it does not correspond to any peripheral or segmental distribution. If the loss of feeling were cortical in origin there would be dullness to pinprick. Therefore if all these things are excluded what is the only conclusion?" He answered, "I suppose mental strain." "Then follow closely how the power returns, so that you may be able to treat others," I said. "The use will

be restored immediately. But there is one other fact that must not be overlooked, and that is your willingness to recover. Are you anxious to get better ? ” “ Doctor,” he said, “ you have explained my condition to me. I shall admit to you that I have been reluctant to recover. I do not want to get better. I have had enough of it all.” I then said, “ It is not necessary to tell me that. What I want you to do is to create a desire to recover. Your unwillingness to recover is a part of your condition, but it will be overcome. If you do not overcome it yourself, I shall break down your resistance. However, this need not be done, for I believe your point of view is now different from what it was in the past. You cannot disagree with me when I tell you that you wish to recover and return to your studies.” “ Yes, sir,” he said, “ I do want to recover.” “ Of course you do,” I said, “ and you are absolutely certain of it, are you not ? ” “ I have made up my mind to recover,” he answered.

He was then told to walk, and as he did so the heel was drawn up from the floor and he walked on the outside of the foot, which he dragged. I then said to him, “ You will lie down on the couch and I shall first of all stimulate the external popliteal nerve to prove to you that the nerve is quite intact. You have some knowledge of the nerve supply to the extensors of the foot ; when the faradic current causes the foot to come up you will hold it in its extended position. I shall first stimulate the nerve with

a minimum strength of current—just sufficient to produce the movement for you. The current will be increased in intensity until the foot is held voluntarily in that position.”

He was not antagonistic, but appeared somewhat uninterested. He was on the couch with his legs away from the battery, when I said, “ You must not be stupid ; surely you realise that it is your foot I am going to treat. You must show more intelligence, because that is what the result depends upon.” He quickly corrected his position and said, “ How long will you need to apply the electricity ? ” I replied, “ That will depend upon you. One application may be sufficient ; many may be necessary. Choose for yourself.” I then applied a weak current to the outside of the right popliteal space ; the foot was instantly dorsi-flexed, but when I ordered him to keep the foot in that position he held himself tense, shutting his eyes, wrinkling his forehead, and turning his head away from me. I said to him, “ I want your attention or it will be necessary to increase the strength of current ; now look at your foot.” He did so as the current was again applied. “ Now,” I said, “ hold your foot in that position ! ” He obeyed and I gradually diminished the current. “ You see the power has returned, nerve impulses are being transmitted ; other movements of the foot depend upon your determination,” I said. He then began vigorously to flex and extend the foot. The patient was then re-educated to walk, first with my

hand hurrying him along, then pushing him from the back ; finally I allowed him to walk alone. I, however, walked beside him, making him walk as fast as I did, encouraging him all the time until the limp completely disappeared. He was then made to run up and down the room quickly.

The stammer was treated during the time he was re-educated to walk. He began by exploding the sound " ah " with the expired breath ; then vowels were repeated, and finally words and sentences. When the stammer had subsided he walked without defect.

This case required forty minutes' continuous treatment.

*Case D7.—FLACCID MONOPLÉGIA OF THE
LOWER LIMB*

OFFICER, 26 YEARS OF AGE. DURATION,
5 MONTHS

This officer had been in the trenches in France over a period of eighteen months, during which time he was exposed to heavy bombardments and took part in various offensives, " going over the top " many times. He became easily fatigued and gradually lost the use of the left lower limb. He was soon after transferred to England, where he received massage and faradism.

When I saw him he was exceedingly depressed and wanted to be alone. He became quite irritable when referring to his condition. The left foot

dragged on the floor as he walked with crutches. There was relative left hemianæsthesia more marked in the lower limb. Severe frontal headache was his chief complaint. The conjunctivæ were injected; the optic discs were normal, and there were no signs of organic nervous disease.

After a physical examination was made I said to the patient, "Please tell me: do you wish to recover?" He made no verbal reply, but laughed, as though he thought I was joking with him. I, however, turned from him so that he should not see that I noticed, and repeated the question more sharply, adding, "That is all I wish to know; tell me quickly, please." This time he was compelled to answer verbally, as my back was to him. He almost instantly responded by saying, "Yes, yes, of course I do." I then left him until I was prepared to treat him two hours later.

He was placed on a couch in the exercise room, the legs were bared, and a faradic current was ready to be administered, when he said, "How are you going to treat me, doctor?" I paid no attention to his question, but placed the pad electrode over the dorsal spines and attached a roller electrode. I then said to him, "I propose to describe to you your condition and the method of treatment I adopt. I am doing this solely for the purpose that it may be of interest to you. Your condition is one of nervous exhaustion brought about by long-continued exposure and strain. Your resistance

has been marvellous. The amount of physical and mental strain that you have experienced indicates such to be the case. But you have had five months in which to rest, and the disorder, which at one time was general throughout your body, has become localised in your leg. Your reservoir of resistance is rapidly filling up again. You must not consider now that your leg is paralysed; you have simply forgotten how to produce movement in the limb. I do not attempt to treat your general condition; it does not require attention because it has already been successfully treated. What remains, the residue, I am going to treat. In view of your long rest rapid recovery is made possible. There is nothing miraculous about the power you will have of walking out of this room in half an hour, unless you think lying in bed five months is miraculous." Continuing, I said, "I shall now explain the method of treatment; the condition of your leg is due to your forgetting how to move it. It is not paralysed, the power is there. I shall first of all demonstrate that to you. If you look at your limb you will see that there is no wasting, and when I apply electrical stimulation to the muscles they will contract." I applied faradism to the motor point of the external popliteal nerve, and when the foot was dorsi-flexed I ordered him to keep it in that position. This was successful. When I told him to straighten out the foot it fell by its own weight and he was unable to raise it again, so I said to him,

"You need a stronger current." I applied a strong faradic current for a few seconds to the anterior surface of the thigh, after which all movements of the foot were voluntarily performed. "Now," I said, "your mind controls your leg. I have treated the distal joint, other parts will not require stimulation. Your memory to walk will recover when you are on your feet again."

He then stood without support. I took hold of his left hand and walked with him, pulling him over to the left, so that most of the weight would come on that side. He soon became exhausted and wanted to rest, and I said, "Surely you do not want to rest until you are walking normally! I know you do not. You will become quite fatigued before you recover, but you must do what I wish you to do. I shall tell you when I think a rest is necessary." I did not permit him to sit down until he was walking normally. Recovery took place after half an hour's continuous treatment.

He left the hospital expressing his gratitude. Two days later he returned with a stammer which came on after some annoyance with a taxi driver. This, however, was very quickly removed. His mental condition improved.

*Case D8.—RIGID MONOPLÉGIA OF THE
LOWER LIMB*

OFFICER, 35 YEARS OF AGE. DURATION,
5 MONTHS

The history was that of sudden onset when the patient was in the trenches in France five months previous to his coming to England. Anæsthesia of the left lower limb was present to a line drawn round the root of the thigh. The leg was stiff, and attempts at movement were associated with spasmodic contractions of antagonistic muscles. He walked with two sticks dragging the left leg, and when he talked he stammered. There were no signs of organic nervous disease present.

When I asked him if he wanted to walk normally he said, "I shall just explain my condition to you; I am exhausted. Rapid treatment will not restore the power to my leg. I need rest, lots of rest. In civil life I teach fencing and I believe my condition will improve if I have exercise in that way. I have been treated by electricity; my leg has improved, because at first I could not move it at all. I feel strength coming back more and more as I am given massage. It is not the sort of case that can be treated at one sitting. What I wish you to do is to allow me to come daily for the treatment, or every other day if it would be more convenient, and possibly in a month or two I shall be better. Just now my condition is such that undue excitement

will be disastrous to me. What is it that you intend doing?" I replied, "Teaching you to walk, to-day. Do you wish to walk to-day, or do you prefer to wait a month or two months? That seems a foolish question to ask you, because I know you prefer to recover as soon as possible." Then he began to repeat what he had already said, when I interrupted by saying, "Please tell me if you wish treatment; I must know that." He replied that he would consider it. I said, "You must decide now if you wish the treatment." "But," he said, "I shall come back to you frequently." I did not answer him, but instead asked him to undress and informed him that the treatment would begin immediately. Before applying faradism I said, "You do not understand your disorder because you are not a medical man. You have been given electricity for several months, and have improved, as you say, but you require persuasion with the electricity. So much am I convinced that five months' rest has fulfilled its purpose that I do not hesitate to tell you that complete power of your limb will return to-day. Five months' rest, together with intelligence on your part, is all that is needed. The treatment that I shall adopt will unquestionably fulfil its purpose. But there is one other thing which is very important, do not forget it—attention."

A faradic current was applied to the outer side of the left popliteal space, and with the production of dorsi-flexion of the foot I said, "You see your foot has

been drawn up : hold it there." When he succeeded in doing this I ordered him to flex and extend the foot, etc. " Now," I said, " you will raise your leg from the couch." He made several attempts, but the limb was not lifted more than two inches, and that with spasmodic movements. I then passively bent the thigh on the trunk and applied faradism to the flexor muscles of the thigh. While doing this I said, " When I remove the electrode you must hold the leg in that position." This was successful. Next, he was ordered to perform movements at the hip, knee, and foot, and when these movements were satisfactorily performed I said, " That is a good start ; there is great strength in the limb already. Are you not pleased ? " He replied, " Of course you know more about my condition than I do, but I am surprised at the progress," and I answered, " On the other hand, I should be surprised if you did not move the leg in the way you do. You are now to walk."

He was then re-educated to walk and insisted on being allowed to do so without the support of my hands. He became very grateful, but I said, " You stammer ; that must be overcome too." The stammer was treated by re-educating him to repeat vowels, letters, words, etc., while he was walking, and in forty minutes he left the hospital walking normally and talking without a stammer.

CHAPTER V

HYSTERICAL PARAPLEGIA

Illustrative Cases : FLACCID PARAPLEGIA OF THE LOWER LIMBS—FLACCID PARAPLEGIA OF THE LOWER LIMBS AFTER AN INJURY—FLACCID PARAPLEGIA OF THE LOWER LIMBS ASSOCIATED WITH HYSTERICAL FITS—RIGID PARAPLEGIA OF THE LOWER LIMBS WITH NO OBJECTIVE SENSORY DISTURBANCE—RIGID PARAPLEGIA OF THE LOWER LIMBS WITH HYPERÆSTHESIA—RIGID PARAPLEGIA OF UPPER AND LOWER LIMBS WITH GENERAL CLONUS.

HYSTERICAL paraplegia may be divided into two classes : flaccid and rigid. The former is generally the initial state, and in it no movement is, as a rule, voluntarily performed. The limbs are limp and apparently toneless, but there is no wasting and the electrical reactions are normal. If it be possible to discriminate clinically between hysterical paraplegia and malingering, it may be in the occurrence of voluntary movement in a flaccid condition. Patients in whom there are no signs of organic disease and

whose limbs appear simply weak can often be made to walk if they are plainly spoken to; I refer here to well-nourished patients returned from the front who have been comfortably bedridden for months.

Patients suffering from rigid paraplegia often give a history of a complete paralysis at the time of onset with improvement under treatment by massage and faradism, the result being that power which has returned is interrupted by contraction of antagonistic groups of muscles and spasm is produced. This condition may be readily demonstrated if one assumes a rigid paralysis of the lower limbs and attempts to make movement against voluntary resistance. Movement of the limbs by the patient, if continued, gives rise to spasm, spasm to pain, and spasm and pain to rapid fatigue of the part and indeed of the whole body, which is held in a state of tension.

Paraplegia is very often associated with mutism or deaf-mutism, and when either of these conditions is present it is advisable to treat the hearing first, or if there is no deafness, the speech must be primarily attended to.

In the general consideration of the treatment of hysterical paraplegia the three following stages will be discussed :

1. Flaccidity—a condition in which no movement whatever can be performed.

2. Rigidity—a condition in which there is some

voluntary movement, but where the patient is still confined to bed.

3. Disorders of gait.

1. In flaccid paraplegia no strain has been placed on the limbs and therefore pain, as a rule, is not complained of. Previous attempts at treatment have probably not been made. Frequently the presence of a wound in the back has obscured the diagnosis, and apart from massage and visitors the patients have been left more or less alone. It has been my experience to find little difficulty in completely restoring these patients, the idea of the treatment being to demonstrate an existing power in one part, then in all the parts, and finally to re-educate the patient to walk.

It will be seen from some of the illustrations in this chapter that treatment by compulsion is the predominating feature. In others, treatment by demonstrating to the patient a return of feeling to the part is resorted to. But the quickest results have been obtained by restoring movement to a foot first, the reason for this being that the patient can see the return of power more satisfactorily in the most distal part. The same methods as those already described in the treatment of foot drop are adopted here. The external popliteal nerve is stimulated by faradism of sufficient strength to produce extension of the foot, the current being persevered with until the foot is held in such a

position voluntarily. This treatment is continued until flexion and extension of the foot are well performed voluntarily. The patient as he lies in bed flexes and extends the foot, the heel resting on the surface of the bed. As this movement is performed his attention is drawn to the movement of the knee, which is raised slightly from the bed as the patient extends the foot. He is instructed to make more effort and bring the knee up higher and higher. As the movements of the knee cannot be performed with the patient lying flat on his back without movement occurring at the same time in the hip, his attention is drawn to this fact if he has not already noticed it. Often good movement will return in these parts by constantly urging the patient. However, if the response appears to be delayed the return of power may be hastened by the administration of faradism. The opposite limb is similarly treated. It has been stated already that the return of movement is nearly always associated with contraction of antagonistic muscles so that a spasm of the limb is produced. This spasm may be overcome by tiring out the muscles, either by vigorously performing passive movements, or else by the application of strong faradism to the parts. The patient must not be allowed to walk until the rigidity has been overcome. Re-education of the patient to walk must be done rapidly.

2. Patients in whom there has been a return of power and who have not been allowed out of bed usually

complain of pain. On the performance of movements in bed the limbs, as a rule, go into a condition of clonic contractions over which the patient has no apparent control. He will complain of severe aching pain in the limbs and also in the lumbar region. After his condition has been explained to suit his particular case the limbs are moved passively until the spasm is overcome, in spite of the apparent distress it produces in the patient. If passive movements do not produce satisfactory results, faradism may be applied to the antagonistic group of muscles, or the patient may be placed in a sculling exercise machine "to loosen the legs" until the limbs have lost their rigidity. It must be borne in mind that the patient must not be allowed to walk until the rigidity has been completely overcome and all movements are with ease voluntarily performed.

3. As there is a special chapter in which disorders of gait are considered, their treatment will not be here discussed.

The most difficult form of functional disorder to diagnose is that of paraplegia, as organic signs are frequently obscured by functional manifestations. For example, in disseminated sclerosis the patient often gives a history of "paralysis of the legs" some years previously "due to hysteria." But it is quite possible, if at that period a careful examination had been made, that an extensor plantar response or some alteration in the abdominal reflexes might have been discovered. On the other hand, a functional para-

plegia occurring immediately after a wound near the spine has often been mistaken for a paraplegia due to a lesion of the spinal cord. Such a conclusion could not have been arrived at if the significance of reflexes had been duly appreciated. Case E2 is an illustration of this.

A most careful examination must be made of all these patients, and treatment should never be undertaken until the diagnosis has been established.

Some of the important differential features between hysterical and organic paraplegia will now be discussed. It must be borne in mind that not one of these signs, except possibly the condition of the reflexes, can by itself establish the diagnosis.

(1) Flaccid paraplegia due to organic disease and flaccid paraplegia of hysterical origin.

(2) Spastic paraplegia due to organic disease and rigid paraplegia of hysterical origin.

1. Flaccid paraplegia due to organic disease presents the following features :—

(a) There is inability to sit up without using the hands, owing to paralysis of the ilio-psoas muscles. To demonstrate this sign the patient is made to lie flat on his back with arms folded in front of him. When placed passively in the sitting position in bed he requires support to maintain that position. Voluntary attempts at sitting up are not accompanied by contraction of the muscles of the lower limbs.

In flaccid paraplegia of hysterical origin the patient

may or may not sit up without using hands, and when he is passively placed in the sitting position he can retain it without support. Attempts at sitting up are associated with contraction of muscles of the lower limbs, and indeed the heels may be pressed firmly against the bed when making such attempts.

(b) The feet are overflexed and their dorsal surfaces may have a bevelled, shiny appearance.

The position of the feet is usually one of normal flexion in hysterical paraplegia of the flaccid type.

(c) Wasting may be a prominent feature in flaccid paraplegia due to organic disease.

Wasting is rarely seen in hysterical paraplegia, though it may occur.

(d) The muscles may show a complete or partial reaction to degeneration.

There is no R.D. in paraplegia of hysterical origin.

(e) When the patient attempts to sit up there may be upward deviation of the umbilicus owing to contraction of the unparalysed abdominal muscles above the umbilicus, the lower ones being paralysed. This sign is of importance in diagnosing the level of the lesion.

In hysterical paraplegia there is no deviation of the umbilicus when the patient attempts to sit up.

(f) The reflexes may be diminished or absent in flaccid paraplegia due to organic disease, and when such phenomena as the extensor plantar response or delayed flexion reflex are present they are always significant of some change of organic structure.

There is no typical alteration in the reflexes in hysterical paraplegia.

(g) When the limbs are completely anæsthetic to pin-prick the faradic current will not be felt.

Patients suffering from paraplegia of hysterical origin can be made to feel faradism.

(h) The motor-sensory-reflex syndrome of the abdomen when present is a certain sign of organic disease. For example, one may find deviation of the umbilicus upwards, sensory loss to the level of the umbilicus, and loss of abdominal reflexes below the umbilicus.

(i) Retention or incontinence of urine with cystitis may occur.

In hysterical paraplegia disturbance of the sphincters is of rare occurrence.

(j) Trophic changes such as sacral sores, etc., may be present in paraplegia due to organic disease.

Bed sores are rarely found in paraplegia of hysterical origin, and when present there is not infrequently evidence of the self-inflicted nature of the condition.

2. Spastic paraplegia due to organic disease presents the following features :—

(a) When the arms of the patient are folded over the chest and he is ordered to sit up the lower limbs are raised from the bed, and as the movement of the trunk is persevered with the limbs are raised higher and higher, depending upon the degree of spasticity.

In rigid paraplegia of hysteria the patient, as a rule,

experiences no difficulty in raising himself to the sitting position in bed, and as he does so the limbs are either not raised from the bed or else are raised in spasms. Sometimes the heels of the patient are firmly pressed against the bed on the attempt being made.

(b) The patient experiences greater difficulty in raising both legs from the bed than in raising only one, owing to the fact that the pelvis can be tilted to the right or left side. As the right limb is raised the patient's weight is on the left side of the pelvis and as the left limb is raised the weight of the patient is on the right side of the pelvis.

In rigid paraplegia of hysterical origin the limbs may be raised together, and there is no more difficulty felt by the patient in raising both than there is in raising only one limb.

(c) If the patient raises both limbs from the bed at the same time and they are not allowed to touch each other, as a rule they do not assume a position of parallelism. In raising, one limb is always higher than the other and when they are brought down the heels do not touch the bed at the same time.

In rigid paraplegia of hysterical origin the limbs are parallel during the performance of these movements.

(d) If one or other of the patient's limbs be moved passively in any direction its fellow may follow. For example, if the right heel of the patient be taken in the observer's hand and the limb moved up,

down, in or out, the left limb will follow the movements of the former, sometimes to a considerable extent.

This does not obtain in hysterical paraplegia.

(e) Contractures are very often present in organic paraplegia ; the thighs, knees, and ankles may be all involved. The flexor mechanism may eventually predominate over the extensor and there may be talipes equinovarus.

There are no genuine contractures of central origin in hysterical rigid paraplegia. The limbs are usually extended throughout, and though there may be inversion of the ankles there is no overflexion. It is true that owing to long disuse or immobilisation a degree of myogenic contracture and of joint adhesions may supervene.

(f) There may be adductor spasms of the limbs, which are not characteristic in rigid paraplegia.

(g) Reflex flexor or extensor spasms may be a prominent feature in the organic type.

Reflex spasms never occur in rigid paraplegia due to hysteria.

(h) Attempts at passive movement of the limbs very seldom produce pain.

In rigid paraplegia of hysterical origin attempts at passive movements accentuate the emotional condition. The patients will often cry out in apparent distress, clench the teeth, wrinkle the forehead, etc.

(i) In the organic type loss of sense of position

and of the appreciation of passive movements may occur without loss of sensation to pin-prick.

Loss of the sense of position and of the appreciation of passive movements never occurs without some diminution in the sensibility to pin-prick in rigid paraplegia due to hysteria.

(j) Spastic paraplegia may show the extensor plantar response, one of the most important signs of organic disease. Its presence is conclusive evidence of organic change in the cerebro-spinal nervous system. Usually the knee jerks and ankle jerks are active and ankle clonus may be present. In some conditions, however, such as subacute combined degeneration, the ankle jerk or knee jerk may be absent; in this stage of that disease there is, however, usually little or no spasticity.

The reflexes show no characteristic change in rigid paraplegia; the plantar response is either absent or of the flexor type. If clonus occurs it is unsustained and irregular and may appear to be initiated by the patient himself.

(k) There may be loss of sphincter control in organic paraplegia.

The occurrence of sphincter disturbance in hysterical paraplegia is rare.

Case *Et.*—*FLACCID PARAPLEGIA OF THE*
LOWER LIMBS

PRIVATE, 44 YEARS OF AGE. DURATION,
9 MONTHS

At Albert, while on a route march, this patient fell and sprained his right ankle. A fortnight later "a bone was removed from the foot" at a hospital in Rouen. Two months later when he got out of bed he limped when he began to walk. He was sent back to bed again, and one month later was transferred to England, where his legs were found "limp and flaccid, but feet and toes not dropping."

On admission to the National Hospital, the patient presented a complete flaccid paraplegia with analgesia to the umbilicus. No signs of organic nervous disease were discovered.

The patient was treated two hours after his admission to Queen Square. (It may be of interest to state here that the Medical Research Committee kindly arranged with Messrs. Pathé Frères to have a cinematograph taken of the treatment of this patient, as a permanent neurological record.)

After he had been examined I said to the patient, "Your condition is curable. Are you anxious to recover to-day?" He answered by saying, "I want to get better; of course I do; but I have just been admitted. I have been in this condition for the last nine months; there is no hurry." I firmly

said to him, "I am quite aware of the fact that you have just been admitted, and you have told me already that your legs have been paralysed for nine months. I do not need to be told that again, and I wish you to remember that I do not intend to listen again to remarks already made to me. Do you mean to tell me there is no hurry? I can see you know nothing about your condition. However, I am pleased that you tell me you wish to get better, because you can be cured." He laughed and said, "Every doctor I have seen has told me he would cure me, but I remain paralysed." Recognising his lack of interest and confidence, I again spoke firmly to him. "I do not wish to hear such statements; it is not necessary for you to tell me you are not cured. I can see that for myself." Again he smiled, and again I attempted to impress him by saying, "You will be walking to-day; in fact you will be walking very soon; you will be treated in an hour. In the meantime, I want you to write a letter to your wife and tell her to come and see you walking. She will be happy to see you again." He looked puzzled and made no reply, so I waited for him to speak, to see if I had succeeded in impressing him. Finally I said to the patient, "I am waiting for you to tell me what you have to say." He hesitated for a time, but at length said that he was not responsible for the way in which he treated his wife; it was not his fault and he could prove it. As he revealed the story of his wife's infidelity which followed

in the wake of a gipsy romance he became more and more dramatic. When he had finished his story he looked up and said to me, "However did you know about it, sir?" I was, however, too surprised to make any reply, and turned from him. It was obvious that the emotional field just then was an accessible channel for suggestive measures, and I said, "Your wife treated you very badly; I am sorry for you." He began to cry, so I went on, "Rid your mind of your unfaithful wife and realise that you will be walking this afternoon. Does such a thought not make you happy? Can you imagine anything that would be a greater means of cheering you than the thought of walking to-day?" He answered, "Do you mean it, sir? Do you mean that I shall recover?"

The circumstances connected with the transfer of this man from the ward to the roof, where the light was best from the photographer's point of view, were rather amusing. In order to do this the patient had to be fastened to a chair by ropes and lowered from one building to the roof of another. Here he was met by an enthusiastic French cinema operator who was anxious to have him placed immediately in the best possible light. The patient was put on a couch, and I said to him, "You must recover very quickly. A continuous photograph is to be taken of you during the treatment—until you are walking normally. Now you must hurry." He appeared to be surprised and suspicious, so I said,

"You are not being photographed because anybody has a particular desire to have your photograph, but because the condition from which you suffer is typical of many that I have successfully treated, and it so happens that you have come into the hospital at an opportune time. Your case, you understand, is a curable one."

When his legs were bared he was made to stand, but he could only do this with strong assistance on both sides. He was placed back on the couch again and a mild faradic current was applied by means of a roller electrode to the upper part of the anterior surface of the right thigh. As soon as he felt the current, he drew his head away and made an effort to release himself from the couch, but he was quickly placed back again, as I said to him, "You must receive this treatment; it will cure you." I again faradised the upper part of the limb, but there was no voluntary response. Then I said to him, "You must be more attentive, observe what I am doing; when the muscle contracts you are to raise the leg higher and higher." I again applied very strong faradism, telling him at the same time that the electrode would not be removed until he was lifting the leg high. In five minutes he began to raise the limb from the couch, and I said, "That is excellent; you will really believe me that you are going to walk normally to-day." On seeing the limb move he looked pleased, and began from that time to make every effort to recover. "Why, sir," he said, "I am

moving my leg, and if you allow me to raise it more I shall do it." "No," I replied; "you require more electrical treatment," as I again applied the electrode to the thigh. In ten minutes he was able to lift the limb at right angles with the trunk, although the movements were associated with contraction of their antagonists. With the limb flexed at the thigh, I ordered him to flex and extend the leg on the knee. This was immediately done without the use of faradism. "Now," I said, "the impulses are all going through. You will have no difficulty in moving the foot." He began to say something, but I interrupted him by saying, "You must not speak, it is not necessary for me to hear what you have to say. The treatment does not depend on it. Now bend your foot." He instantly began vigorously to flex and extend the foot without spasm. "That will do," I said. The opposite limb was treated similarly. All movements were performed in the course of a further three minutes by gentle faradisation to the limb. He was then ordered to make movements at the various joints. At first he was slow and wanted to rest. This was overcome by the application of strong faradism by means of a roller electrode for three minutes up and down the right and left lower limbs, after which all movements were quickly performed to order.

When dressing himself for the purpose of walking, he became slow when adjusting his boots and it was constantly necessary to make him hurry.

While assisting the patient to his feet, I said to him, "You must be very pleased with the results so far obtained." "Yes, sir," he replied, "I am glad I am so much better, but I have had enough for to-day." "I am sorry you are so easily satisfied," I said, "but you must remember that I am satisfied with nothing except complete recovery." I took him with both of my hands and hurried him up and down the roof floor. The limbs dragged and he put most of his weight on me at first. I constantly urged him to rely more on himself, and soon he was able to walk slowly with the assistance of one of my hands, then by holding on to one of my fingers, the gait gradually improving. When I left him alone he fell, but I hurriedly brought him to his feet, and told him he was not to do that again. Then I walked behind him, pushing him as he walked, encouraging him, and insisting that he should hurry. He was not allowed to walk alone until he was able to do so without any inco-ordination. In less than one hour he was walking normally. He went back to his ward without support, walking down a steep fire escape, and his mental condition was quite changed.

*Case E2.—FLACCID PARAPLEGIA OF THE
LOWER LIMBS AFTER AN INJURY*

BELGIAN, 25 YEARS OF AGE. DURATION,
26 MONTHS

This Belgian soldier had in his charge a patrol party of twenty-one men during the battle of Malines.

German cavalry made an advance and he entered a small wood for protection. While he was there a wheel of a gun-carriage rolled over him as he lay on his left side on the ground. He remembered nothing from that time until about two and a half months later, when he awoke in England to find his lower limbs paralysed and his speech gone. The voice returned in a few weeks' time.

When I saw the patient, twenty-six months after the injury, his lower limbs were paralysed and in a flaccid state, and there was anæsthesia from the knees downward. There was a large scar on the right side of the abdomen, but there were no signs of organic nervous disease.

He worried considerably over his father, who had been a mayor of a small Belgian village and had been killed together with the remainder of his family while they were prisoners in the hands of the Germans.

Previous to his admission he had been given faradism and massage.

A number of Belgians suffering from some form of functional paralysis and coming from the same hospital as this patient had been successfully treated at Queen Square. I therefore thought it unnecessary to make any further psychic impression on this patient. Notes were taken of his case on the day of his admission to the National Hospital, but he was intentionally neglected until he asked when the treatment was to be given him. The sister of the

ward informed him that when he asked to be *cured* he would receive treatment. About a fortnight after his admission he asked, "Doctor, when are you going to cure me?" Steps were then taken for the purpose of treating him.

He was taken that evening to the exercise room, where I said to him, "You will leave this room when you are able to walk back to your ward alone." The patient was put on a couch and the lower limbs bared. The right limb was passively flexed and extended rapidly for several minutes and he was told to "hold the limb up." It remained elevated from the bed for a few seconds, but gradually fell again. I said to the patient, "You see you have power, you must increase it, and this can be done by your making every effort." He, however, made futile attempts, and the leg was becoming somewhat rigid in his efforts to raise it. Finally he said, "Doctor, I cannot lift the leg," and I replied, "You must not say you cannot do what I tell you to do; others from your hospital in a similar condition to you have recovered. You know that very well." "But," he replied, "I had an injury; look at the large scar, the result of the German gun carriage running over my abdomen; you do not expect me to recover completely, do you?" "Please do not talk to me any more," I said. "I have already told you that you will recover to-night and I mean it; what I want from you is, that you do what I tell you." I then pricked him with a pin from the foot to the knee and

said, " You see you have no feeling in the legs, and more than that, you do not know the position of your legs when I move them." This I did for the purpose of creating an interest in the patient. I asked him to close his eyes and tell me whether the leg was " bent " or " straight " as I moved the limb in various positions. When he made a mistake, I allowed him to look and see that he was wrong. He laughed over his mistake and instantly became more interested in what I was doing, so I said to him, " The next stage of the treatment consists of electricity of sufficient strength to restore the lost feeling ; with this, the power of the limbs will return." I did this in spite of the fact of his having been treated for many months with faradism, administered by a hospital nurse. He said, " I have had electricity, it is no good for me." I answered, " Mild electricity is not sufficient for stubborn conditions such as yours. You must be given very strong electricity ; indeed, I shall give you the strongest I can procure. The fact that you have so much loss of feeling indicates to me that the strength of current you received was not sufficient to restore feeling. Therefore I shall give you very strong electricity until the feeling has returned, and when that is accomplished the movement will also be restored. At present I do not wish to hear what you have to say."

Strong faradism was employed, the pad electrode being fastened to the dorsal region and a wire brush placed under the leg over the calf muscles. As soon

as he felt the shock he withdrew the leg from the wire brush. He was given no respite, however, as the brush followed the leg as it changed its position. I ordered, "Lift up your leg," repeating this until the leg was raised from the bed. After withdrawing the electrode I said to the patient, "Lift the leg higher and higher ; when you do not make satisfactory progress I shall apply the electricity again."

He became fatigued, as all movements were associated with contraction of antagonistic groups of muscles, and indeed the whole body was more or less rigid during his efforts to move the limb, and he began to complain of pain in the back. I paid no particular attention to this, but urged him to lift the leg, assuring him that the treatment would not be stopped until the limb was fully flexed on the thigh, and that when that was accomplished the pain would subside. The leg was then lifted more and more voluntarily in "jerky" movements, although the contraction of antagonistic muscles was diminishing somewhat. I then applied the wire brush up and down the limb as I repeated "Raise the limb more and more. Hurry ! Lift it up ! Quicker ! Quicker !" etc.

Both legs rapidly went into a state of clonic contraction. I turned off the current and the whole body went into a clonic state. When I spoke to him he did not answer, so I said to him, "The shakiness of your limbs has spread, you are about to have a

fit. That is excellent, because I consider such a thing a climax. You will quickly recover when I cure the fit."

I stopped the fit almost instantly by supra-orbital pressure, at the same time ordering him to "lift the leg." The leg was immediately lifted high from the bed, the antagonistic muscles relaxing very well. With the thigh fully flexed, I commanded him to bend and straighten the knee. These movements were performed satisfactorily. He was next instructed to bend and straighten the foot, the thigh still being flexed on the trunk, and I considered that the general negativism was overcome. I did not refer to the sensory loss, as I thought it was unnecessary.

I then said to him, "It makes a great difference to your future, does it not, to have the power restored to your leg?" He did not reply, but seemed confused. He recovered from this, however, and after the application of more faradism to the abdominal muscles was able to answer my question. "Doctor," he said, "I am tired." I said, "There is no use causing yourself so much suffering. You must be more interested in the result so far obtained; the treatment will be continued until you are walking normally, because that is the aim of the treatment. Remember, you must walk normally."

The left leg was similarly treated, the patient responding much more quickly. When he realised the legs were moving normally he said, "I am glad

I am recovering," and I said to him, "You have not recovered, there remains a loss of sense of position in the legs which must be attended to; this must be done by graduated exercises." I did not, however, test his sense of position. I then ordered him to stand, but when his feet touched the floor he fell over, and I said, "You must not give up; help yourself; put all the effort you have into all your attempts." He replied, "Doctor, I am so tired, I am exhausted." I said, as I lifted him to his feet again, "Of course you are fatigued, you have had a very strenuous time of it, but this is all important to you; the tired feelings will subside when you are walking alone." I allowed him to place most of his weight on me at first as he made efforts to walk, but hurried him along as he dragged one limb after the other. I kept repeating, "Lift your leg and place more weight on your own body, be more confident in yourself." After being assisted in this way up and down the exercise room several times, he began to rely more and more on his own strength. I gradually withdrew one hand and then the other, finally holding on to his back and pushing him along in front of me. He was soon walking alone with a staggering gait, and I said to him, "It is obvious that you do not feel so tired; is that not so?" He agreed. Then I walked with him, not allowing him any support, but talked to him on subjects in which he was interested. He soon succeeded in occupying his mind with the

conversation and began talking and laughing. He said he felt very happy and began to quote poems of his own composition. He appeared grateful ; indeed became demonstrative, but I instantly checked him. "Your duty is to walk normally," I said. "Your reason for coming here was to be cured and not to quote poetry. It is not a novelty for me to see a man recover his power of walking in two hours. Emotional demonstrations are entirely out of order in cases such as yours, and I do not appreciate them, and neither will you when you consider that the result obtained is what should be expected." He then became less demonstrative and more practical, and with the change in the emotional state he lost all trace of a disordered gait. In two hours he returned to his ward, walking down two flights of stairs without support, apparently pleased with the result.

It is with reluctance that I publish this case. The only merits that can be assigned to such methods of treatment are to be found in the result. The patient would no doubt have more readily recovered if the treatment adopted had been less strenuous and more wisely applied. The suggestive element in his own mind produced by his knowledge of his abdominal wound was not outweighed by the other suggestive factor arising from his knowledge of the success with which cases from his hospital had been treated at Queen Square. This was contrary to my anticipation, but I considered that in his case

it was too late to turn back from a method of treatment already begun.

Case E3.—FLACCID PARAPLEGIA OF THE LOWER LIMBS ASSOCIATED WITH HYSTERICAL FITS

BELGIAN SOLDIER, 23 YEARS OF AGE.
DURATION, 13 MONTHS

When he was on an observation post in Belgium a shell burst near this patient and he fell to the ground a distance of twenty feet. He was rendered unconscious for about six hours. On coming to his senses he was paralysed in the lower limbs and his speech and hearing were gone. The power to speak and to hear returned in a few days without treatment. Five months later he was sent to a hospital for Belgian soldiers in London.

On admission to the National Hospital he presented a complete flaccid paraplegia of the lower limbs with diminution of sensibility to pin-prick up to a line drawn round the body at the level of the umbilicus, together with loss of the sense of position in the lower extremities. A few days after his admission he was seized with hysterical fits which invariably stopped whenever a physician entered the ward. There were no signs of organic disease.

This patient was poorly nourished mentally and physically and indeed very depressed, and as he was aware of the fact that a number of Belgians from his former hospital had recovered under my treatment,

I did not attempt to suggest anything to him except that he would walk the same night.

He was carried to the out-patient hall and placed on a couch. His limbs were bared and strong faradism applied up and down the legs by means of a roller electrode for about ten minutes. I did not speak to him during the faradisation. When I had finished I said to him, "You will be able to walk now," as I lifted him from the table and began walking with him as he held on to me. He immediately fell. I took hold of his hands, pulling him to his feet; he made an effort to stand, but soon fell down again. Every time he fell, however, I hurriedly brought him to his feet again, and after this had been repeated many times he was able to prevent himself from falling, but could only move forward with great effort, the legs dragging. In the course of fifteen minutes he was making very little headway, so I again applied faradism to the legs, this time using a wire brush electrode, and commanding him to raise the limbs. He resented this, but I persisted in its use for ten minutes without any interruption, after which I said, "You will walk much better after the strong shocks I have just given you," at the same time putting him on his feet again and making him stand. After this he exerted more effort, and I persistently ordered him to walk, although he continued walking very slowly, dragging the legs and staggering. He became exceedingly depressed and his body was tremulous

He asked if he might sit down when at the farthest end of the room, but was not permitted to do so. Then he developed a hysterical fit. The battery was taken to him and strong faradism applied to parts of the body that were not anæsthetic, and I said to the patient, "You must hurry and get better; you must get better quickly. Get on your legs quickly and walk; the fit you just had indicates to me that much stronger electricity must be employed. Remember, you must recover." He quickly rose to his feet without support; I took one of his hands and hurried him up and down the hall, and after running with him for ten minutes he became quite exhausted and complained of aching pains in the back. I said, "In most of the cases I treat there is a feeling of exhaustion with pain in the back; this is due to lack of exercise together with being suddenly made to walk. A person who has been ill in bed for even a fortnight feels tired when he walks a short distance. You have no doubt experienced that yourself, and if you have you will easily understand that a person who has been in bed for nine months will experience much greater exhaustion. In your condition, the tired feeling is the best sign possible; you could not recover without that sensation. All the feeling is coming back and you can see for yourself that the power is returning. But all the power that is to return has not returned yet. You will become more tired than ever before you are walking normally; you are not nearly so

exhausted as you will be before recovery takes place, but you must hurry. When you are walking more steadily you will be less fatigued, and when you are walking normally you will experience no exhaustion at all." This I said as I was walking up and down the out-patient hall with him. The gait began to improve rapidly, and I left him so that he might walk alone, timing him with my watch as I ordered him to improve his speed each time he paced up and down the room. After persisting in this for half an hour he said he was not nearly so tired, so I permitted him to rest for three minutes. He then objected to having to walk again, but I insisted on his obeying my orders. When he got up he staggered more than he did before he sat down, and I said to him, "Your rest has done you no good; you are not walking as well as you did; you will have no more rest until you go back to your ward, and that time will not come until you are walking normally." He began to put forth every effort for a speedy recovery. After this he soon walked very well, and I said to him, "You are doing splendidly; it was well worth undergoing the treatment, was it not?" He laconically replied "I am glad." Then I made him walk up and down the room repeating loudly "I am glad I am walking." As he repeated this his gait improved quickly, and I persisted in making him repeat it, urging him all the time to walk faster. He must have seen something humorous in the situation, for he began to laugh and soon to walk normally. By this time the

depression had disappeared and he became quite grateful. The case required two hours' continuous treatment. The patient was working in a munition factory when I last heard from him.

Case E4.—RIGID PARAPLEGIA OF THE LOWER LIMBS WITH NO OBJECTIVE SENSORY DISTURBANCE

BELGIAN SOLDIER, 24 YEARS OF AGE. DURATION,
26 MONTHS

At the beginning of hostilities a shell exploded close to the patient at Dixmude. He fell and remembered nothing for four days. When he came to himself he was in a hospital at Calais. Severe pain in the lumbo-sacral region was complained of by the patient, and he was unable to move the lower limbs. Two months later he was sent to England and treated in a hospital for Belgian soldiers for nearly two years. While there he had been given electricity. His legs were made "stiff."

When I saw him, he appeared very well nourished and seemed to be contented with lying in bed and reading. The patient was of the choleric temperament, and also he enjoyed talking about himself. When a physical examination was made he became resistive; the slightest exertion, he claimed, caused him pain in the back which would be relieved "if I were left alone." He was able to raise the leg about one inch from the bed, but when doing so the limbs went into

spasms, over which he had no control, and which persisted until the limbs were passively flexed and made to rest again on the bed. No loss of feeling could be demonstrated in the legs and attempts at suggesting anæsthesia met with no successful results. There were no abnormal neurological signs.

I said to the patient, "Most patients suffering from curable disorders such as yours have loss of feeling in the legs, whereas your sensations are normal. This," of course, is accounted for by the fact that you have been treated with electricity. You remember, no doubt, the time when your legs were numb and there was very little feeling in them." "Yes, sir," he said, "but I have had normal feeling in the legs for nearly a year; the electricity brought back some of the power, but I have remained at a standstill, and I believe my condition is much worse because there is more pain." I replied, "Of course there is more pain. The feeling has been restored and the spasms of the legs cause you pain. This, as a fact, is easily overcome; you were treated to a certain extent, that is until the feeling returned to the legs. After that you have made no progress. In treating such conditions, the first thing I do is to restore the lost feeling; when that has been done I restore the power. You will recover very quickly, because I only need pay attention to the recovery of the lost power. It will be a matter of half time. Do you understand?" He became excited and more disagreeable and said, "My condition is not

the same as others who came from my former hospital ; it is quite different." " Yes," I said, " your condition is quite unique ; if you had a headache it would be a special variety, and nobody could claim a similar pain. How long were the patients to whom you refer under your professional observation ? " I continued. " The idea you have of the nature of your condition interests me only from a mental point of view ; apart from that I consider it to be valueless. Now, I am about to treat you, and it will take you all your time to reflect on yourself, not on the condition of others. It is you I am treating. I shall not discuss anything with you further. My attention will be directed to the restoring of *your* legs, nothing else, and you must direct your thoughts in the same channel." He made no further attempts at speaking.

He was taken to the exercise room, placed on a couch, and the legs bared. Faradism was then applied to the external popliteal motor area. He resented the use of electricity, so I said, " You shall not choose your treatment, you are going to be given the treatment that I know will restore your walking. Please do not interfere with me, but do what I tell you." I again applied the key electrode to the same area, and when the foot had been extended for twenty seconds I said, " I suppose you require a stronger current, but you will not need a stronger current if you look at your foot." He then looked, and I said to him, " Repeat for me ' My foot is cured,' and

continue repeating it, and keep holding the foot in that position." Then I removed the electrode and told him to bend and straighten the foot. This he did as he continued repeating what I had told him to say. "Now," I said, "you have made good progress. The rest of the power will be restored in a similar manner." I then applied the current over the anterior surface of the upper part of the thigh and ordered him at the same time to lift the leg while the current was "going through." He succeeded in raising the leg a considerable distance from the couch, but all movement was accompanied by uncontrollable spasms. I said to him, "This spasm can be easily overcome. I shall apply the same strength of current, using a roller so that the current will be quickly distributed all over the leg at nearly the same time. If you do not succeed with the weaker current, I shall increase the strength until you do." The electrode was rolled quickly up and down the lower limb, and he was commanded to raise the leg higher and higher. When progress was not satisfactory the current was increased until finally he succeeded in flexing the thigh at an acute angle with the trunk without any involuntary movement. With the thigh flexed in this position and the leg extended at the knee I said, "Bend your leg, straighten the knee." These orders were instantly obeyed, the electrode being in my hand and the current being turned on all the time so that its use might be immediately resorted to. Then the current was turned

off and the electrode put down, and I said, "You are no doubt very glad that movement has returned in your leg, but the movement will return even more quickly in the opposite leg." Then I applied the roller electrode with the same current as I told him to lift the leg, passing the roller up and down the whole of the lower limb and repeating "Higher, higher, higher," etc. He succeeded in performing all movements to order in the left leg in about three minutes. I then said to him, "You are now going to walk, and, remember, you do not leave me until you walk normally." Similar re-educative measures were employed as those described in other cases in this chapter, the idea being to persist until satisfactory progress was made and to encourage him as he walked without support. He was not allowed to make any statement until the gait was normal.

This patient required one hour's treatment.

Case E5.—RIGID PARAPLEGIA OF THE LOWER LIMBS WITH HYPERÆSTHESIA

PRIVATE, 32 YEARS OF AGE. DURATION,
10 MONTHS

When this patient was in the trenches at Vimy Ridge a shell burst on the parapet. He was "blown up" and remembered nothing for two days. When he awoke he was unable to use the lower limbs. A few weeks later he was transferred to England, where he received massage and electricity.

On admission to the National Hospital ten months later he had a rigid paraplegia of the lower limbs with hyperæsthesia from a line drawn round the roots of the thighs. There were no signs of organic nervous disease. He was very nervous and depressed, and when attempting to talk he cried. Sudden sounds would startle him. His facies was one of profound fear. He was suspicious and guarded himself as far as possible against physical examination.

When the patient was told to move either leg in bed the body would go into spasms, so that the legs would be raised from the bed in clonic movements. This would cause him severe pain in the groin. He became more and more resistive, crying in apparent agony as he made attempts to move the limbs.

I said to him, " You are a gloomy fellow. Do you think you would brighten up if I made you walk ? " He replied, " Doctor, I am very ill, I have been through a great deal ; my heart is bad ; I do feel very ill indeed," and I answered, " Your heart is normal, your disorder lies in the inability to walk. I shall pay no attention whatever to anything except your legs ; they are of course out of use for the present, that is obvious. Your other complaints have no foundation, you must rid yourself of them. You say you have pain and a disordered heart because you imagine that your condition calls for such symptoms ; you do not need to have pain and a bad heart with useless limbs ; you have

pain in the legs and a bad heart on the brain. Dispose of your erroneous ideas ; throw them away. Your defect lies in the inability to walk—nothing else, and that can be cured if you are willing to have treatment. Do you want to be cured ? ” He answered that he would like to walk, but persisted in saying he felt ill and that treatment would harm him. I said, “ I do not want to hear anything more about your feelings. Remember, it is your power to walk that I am going to prove to you. Do you want to walk ? Answer me, Yes or No.” He answered in the affirmative. I then said, “ Do you prefer to recover to-day or to-morrow ? ” He began again to talk of the pain. “ Do you prefer to recover to-day ? That is what I am asking you,” I repeated. He answered “ Yes, sir.” I said to him, “ Do you want to recover to-night or now ? ” He hesitated, then he began to talk of his pain, but I interrupted by saying firmly to the patient, “ I asked you if you wanted to be cured to-night or now, please answer me. I know you want to recover now, is not that so ? ” He replied, “ Of course I want to recover as soon as I can.” I again put the question to him, “ Now or to-night ? ” He replied, very gloomily, “ Now.” I said, “ You have at last made up your mind to recover now ; thank you. It was ridiculous of me to ask you such a question ; anybody can see you are anxious to recover. I am glad you want to recover now for your own sake. However, I should like you to say to me ‘ Please treat me *now*. ’ ”

When he repeated this he became more hopeful, and I said to him, " Now that you have asked me to cure you I shall begin to treat you. Please get out of bed and stand." As I said this I turned from him and told him to hurry. He stood holding on to the bed. I then stood in front of him, holding both his hands, and told him to take a step. The legs went into a state of clonus and he was unable to put one foot in front of the other. Then I walked backwards with him, pulling him by his two hands along the floor. He was indeed a dead weight at first, but I succeeded in " dragging " him to the far end of the ward without his falling. I said to him, " You said you wanted to be cured now ; ' now ' will be over soon. You must put forth every effort both in your mind and in your legs. The legs will do their duty if you allow your mind to let them. Throw away that resistance that holds you back. You must put more weight on yourself, keep your body straight, your head up, and rely on yourself, and if you do this recovery is imminent." He was made to walk with the assistance of only one hand, and I encouraged him by saying, " You are doing splendidly, I know you want to recover now. Are you happy at making such progress ? Answer me immediately." He said, " Of course I am ; I wanted to walk long ago, but the electrical treatment caused me pain." I replied, " Your legs will remain sensitive until you are cured ; electricity is not the proper treatment for such conditions as yours.

You must be made confident in yourself." He said, "I am afraid of electricity, I always have been; I cannot stand it, it makes me much worse."

"I am treating you with 'I will,'" I said. "You must give up that subconscious 'I will not'; now make every attempt to walk alone, you will not fall." He walked successfully up and down the ward, but supported himself with every object that was near to him.

He staggered to the exercise room, holding to the wall on his way, but in the room there was no obstacle, so I quickly increased his speed each time he walked up and down. He staggered considerably at first. A large mirror was placed at the end of the room so that he could see his unfinished gait, and he was made to look at his walking in the mirror and correct for himself any defect he discovered. In an hour he was sent back to the ward walking without the slightest difficulty.

Case E6.—RIGID PARAPLEGIA OF UPPER AND LOWER LIMBS WITH GENERAL CLONUS

BELGIAN SOLDIER, 22 YEARS OF AGE. DURATION,
2 YEARS

A shell exploded near this patient at Liège. He remembered being "taken off" his feet, but after that knew nothing for a fortnight. When he came to himself he was completely helpless, there being no movement in the head, neck, trunk, upper or lower extremities. He was sent to various hospitals

in Belgium and France. Two months after the onset he was sent to a Belgian hospital in London, where he received general faradism.

On admission to the National Hospital he was unable to use the upper or lower limbs. All movements of the arms could be performed, but movement was characterised by a severe tremor simulating the intention tremor of disseminated sclerosis, which persisted until the arm was passively extended. On one occasion, when the patient was told to touch the nose with the forefinger of the right hand, the whole arm went into a condition of violent spasms, so severe that the nose was badly injured. The spasm was not diminished, but continually increased until the whole musculature of the body took part in the violent spasmodic movements. The latter simulated to some extent the clonic convulsive seizure of epilepsy, but the patient did not lose consciousness, pass urine, or bite his tongue. The longer the clonus was allowed to persist the more intense it became. This condition only occurred when he was told to perform movements of the limbs.

The patient was thin and had a suspicious, frightened look. He said he had been treated by electricity daily for a long period, but the body had become "stiff" since its use. There were no signs of organic nervous disease present.

When I asked him if he was anxious to be cured he replied, "Yes, doctor, I do want to walk again."

I said, "Why did you come here? Do you think you can be successfully treated at this hospital?" "Yes," he replied, "I do; you have treated other men from our hospital and they all recovered." Then I said, "Very well; do what I tell you and you will recover in a very short time. I shall apply electricity by a different method from that previously employed in your case; it will cure you quickly." He said, "Do anything you like with me."

A screen was placed round his bed and he was treated in the ward. Gentle faradism was applied to the right arm by means of a roller electrode, the roller being passed up and down the whole length of the arm as it lay in the resting position.

He was then told to bring gradually the index finger to his nose while the arm was being faradised. When any unsteadiness of the arm was noticed he was told to "go slowly" and bring the arm to the bed again. With each attempt he improved, but he was not hurried. In five minutes he could perform any movement of the right arm without the slightest tremor. The left arm was similarly treated and took only half the time of the right arm.

He was very pleased with the result and placed his arms in various positions so that I should be pleased with him. I made no comment, regarding everything as being just what I expected.

The legs were then faradised in a similar way. The right leg was first treated, faradism being applied as he was told to lift the limb higher and

higher from the bed. With the appearance of "clonus" the limb was put at rest, and in two minutes normal movement was voluntarily performed. When I was about to treat the left leg he raised the limb and performed all movements without any electrical application.

When I placed him on his feet the legs went into severe spasms, and although I ordered him to stand, when I left him he fell, striking the back of his head on the bed. I did not expect this, and told him I was very sorry such a thing happened. He replied, "Oh! that is nothing." I helped him to his feet, fastened the electrode over the dorsal region, and applied the roller electrode to the back, buttocks, and legs. I ordered him to stand erect; at first he had the wall for support, but voluntarily gave this up, and in five minutes he was able to stand unsupported.

It was his wish that he should dress himself. This was not permitted, as I told him he needed all his energy for walking and that he must not overdo himself on account of the damage to his head.

He was very anxious to walk and from the beginning wished to try his own power without any support. This was allowed him and he was left to carry on as best he could. When I returned an hour later he was walking normally.

The patient remained in the hospital for a month and when he was discharged had gained two stones in weight.

CHAPTER VI

HYSTERICAL HEMIPLEGIA.

Illustrative Case: LEFT HEMIPLEGIA

HYSTERICAL hemiplegia may occur on either side of the body ; it has been my experience, however, to find this condition manifesting itself more frequently on the right than on the left side. Mutism or deaf-mutism may accompany right hemiplegia, and illustrations of this have already been given in previous chapters.

The association of right hemianæsthesia with mutism is very common ; indeed a patient with such a sensory loss will often give a history of some speech disorder occurring at the onset of his condition if the latter has not persisted. Patients may have a hemianæsthesia without any weakness. There are many who attribute the occurrence of right hemianæsthesia in cases of speech disorder to the suggestive factor dominating the physician's examination either before the patient reaches England or after he has arrived there. It is true that many patients realise that an injury to one side of the head may produce a hemiplegia on the opposite side of the

body, but I believe it is doubtful if they have the knowledge of speech centres situated on the left side of the brain in right-handed individuals. If such, however, be the case, it is difficult to conceive why so many have a speech defect without loss of power on the right side, and at the same time show a right hemianæsthesia. I feel certain that in many cases where hemianæsthesia is discovered previous tests have not been made, and I have taken every precaution against suggesting anæsthesia to my patients. I have often used a pin over the patient's body, not speaking to him at all, and when I touched the right side he would pay little attention to me, but when I pricked the left side of the body he would instantly become startled. Of course one would require the reports of a greater number of cases than I have had the opportunity of examining. At the same time I incline to the view that hemianæsthesia or anæsthesia in any part need not be suggested by the physician ; it may be due to auto-suggestion, but this is difficult to prove. The fact remains, however, that right hemianæsthesia may be found in patients with a previous history of speech defect ; it may be accompanied by a speech defect ; and, also, a right hemianæsthesia may present itself without any loss of power.

In the treatment of hemiplegia, it is advisable to treat the lower limb first, as re-education of the upper limb may be carried on while the patient is being re-educated to walk. Indeed the upper limb

will frequently recover without treatment after power has been restored to the lower limb. In some cases, however, it is best to treat the arm first. The patient B₄ is an example of this. The upper or lower limb may be treated in the same way as for monoplegia in the upper and lower limbs.

Hemiplegia may be produced by a lesion of the pyramidal tract, and therefore it is necessary to differentiate between organic and hysterical hemiplegia.

Organic hemiplegia presents the following features :—

(a) In hemiplegia due to organic disease, the affected upper limb assumes a position of slight abduction at the shoulder, flexion at the elbow, semi-pronation of the forearm, and flexion at the wrist. The hand has a claw-like appearance. The fingers may be opened with difficulty ; they are usually approximated ; attempts at passively extending the fingers meet with an elastic resistance ; the palm sweats and has a peculiar odour. In the lower limb the leg is extended on the knee, the extensor muscles being stronger than the flexors.

The position of the upper and lower limbs in hysterical hemiplegia is similar to that already described in the chapter dealing with monoplegia.

(b) When the patient lies flat in bed with his arms folded across the chest and he is then made to sit up, the paralysed limb becomes flexed at the hip and extended at the ankle, and the heel is raised from the

bed. At the same time the healthy shoulder is carried forwards. To obtain this sign, the lower limbs must not be allowed to become approximated.

In hysterical hemiplegia the heel of the affected limb is pressed against the bed when attempts at sitting up are made, or if there is some power in the limb it is raised from the bed in spasms.

(c) The patient is unable to raise both limbs from the bed simultaneously, unless the limbs have become approximated at the feet during the performance of the test.

In hysterical hemiplegia, if the patient has power to raise the affected limb, the initial efforts are produced simultaneously on the two sides, even if the feet are not allowed to become approximated.

(d) If the patient succeeds in lifting the hemiplegic limb from the bed he is unable to keep it raised if the unaffected limb is then passively lifted.

The hysterical hemiplegic limb when lifted voluntarily from the bed goes into spasms, and any movement performed voluntarily or passively in the unaffected limb does not affect the former.

(e) When a patient suffering from organic hemiplegia raises the healthy limb and the paralysed limb is passively placed parallel with it, he is unable to hold the affected limb voluntarily in that position; it instantly falls, the healthy limb maintaining its former position.

This does not obtain in hysterical hemiplegia.

(f) When the face is involved in hemiplegia due

to organic disease the weakness is observed in voluntary movements, though not as a rule in movements of expression.

In hysterical hemiplegia, asymmetry of the face is very rare: if it is present it is seen on attempts to perform voluntary movements. The movements of the face are symmetrical in movements of expression.

(g) The platysma myoides muscle does not contract so well on the affected side as it does on the sound side in hemiplegia due to organic disease.

In hysterical hemiplegia the platysma myoides muscles act equally well on the two sides.

(h) The tongue may be deviated to the side of the paralysis in organic hemiplegia.

Sometimes in hysterical hemiplegia the tongue is deviated to the opposite side.

(i) There may be lowering of the eyebrow on the hemiplegia side in organic disease.

There is no lowering of the eyebrow in hysterical hemiplegia.

(j) In organic hemiplegia flaccidity precedes spasticity. In hysterical hemiplegia flaccidity may or may not precede rigidity. In rigidity contraction of the antagonists is always observed.

(k) Hemianæsthesia may or may not be associated with organic hemiplegia.

There is usually hemianæsthesia on the side of the paralysis in hysterical hemiplegia.

(l) If the observer takes hold of the toes of the hemiplegic patient and firmly flexes them, there is

a flexion reflex of the hemiplegic limb. This cannot be demonstrated on patients who are very sensitive to such tests ; however, a difference on the two sides will generally be observed in organic hemiplegia.

In hysterical hemiplegia the performance of such a test will reveal no difference on the two sides.

(*m*) The reflex signs, which are the most important of all, are constituted by increased arm-jerks, active carpo-metacarpal reflex, increased knee jerk and the extensor plantar response. The abdominal reflex in the hemiplegia side may be diminished or absent.

The reflexes are normal or do not show any unvarying and characteristic change in functional hemiplegia.

Case FI.—LEFT HEMIPLEGIA

PRIVATE, 42 YEARS OF AGE. DURATION,
8 MONTHS

This patient when on outpost duty on the Somme was injured by a piece of shrapnel and lost consciousness. The wound was situated two inches to the left of the tenth dorsal spinal process. He was lying on his face at the time. Some time afterwards he woke at Boulogne and while there contracted pneumonia, from which he recovered in three weeks.

On his attempting to get out of bed at the end of that time his left leg was found to be completely

paralysed and the left arm was weak. He was shortly afterwards sent to England.

When I saw the patient the wound was healed ; the left leg was very weak, but he could use the left hand without difficulty, although movement was not free. There was enough power in the left leg to allow him to lift it slightly from the bed, but movement was held back by contracting antagonists. When he walked the left leg dragged, and he staggered from side to side and had to take hold of objects to support himself. Previous to his admission to the National Hospital he used a stick, but got about very slowly. The left shoulder was on a much lower plane than its fellow, and the head was tilted to the left. There was a complete left hemianæsthesia present, but there were no signs of organic nervous disease.

After I had completed the examination, the patient began to complain of pain in the back over the region of the wound, and there were obvious signs of his endeavouring to irritate the wound with his finger nails. "It is the wound in the back that has caused me all this trouble," he said, "I have no feeling on that side at all." I replied, "You have already told me you do not feel the pin-prick on the left side of the body ; does the loss of feeling extend throughout the left side of the body, or is it limited to the region of the wound ?" He answered, "The loss of feeling extends throughout the left side, but is worse below the wound." I said, "Of

course you would expect the loss of feeling and loss of power to be more marked below the wound, would you not ? ” “ Yes,” he replied quickly. I then said, “ If the loss of power were on one side and loss of feeling on the other it would be different, but as it is, the loss of feeling will quickly return with electricity and afterwards the loss of power will be restored.” He interrupted, “ But, doctor, I have already been receiving electricity.” “ Yes, that is so,” I replied, “ but you have not been given the same strength of current as I employ.” I thought it unnecessary to make any further attempt to impress him, and decided rather to command him. “ Now lift your leg from the bed,” I ordered. He immediately raised the right leg, and I said, “ I do not want you to waste my time ; why do you suppose I should tell you to raise the right leg ? I know it is normal. Lift the left leg.” Taking hold of the sides of the bed and clenching his teeth, he raised the left leg in short spasms, the leg falling convulsively to the bed. He was then ordered to turn over on to his face. This he did with considerable effort, holding the head and trunk quite rigid. “ I do not propose to assist you,” I said ; “ I shall treat the leg in its present position, but I shall have to use a stronger current.” I extended the thigh fully on the trunk, holding it in that position with one hand and applying strong faradism with the other by means of a roller electrode. In spite of his objections, I kept the current continuously applied for

about three minutes, and commanded, " Hold your leg in that position ; do not allow it to fall, otherwise I shall increase the strength. Put forth every effort to move your leg, and do not make efforts for the purpose of holding your body tense. You are moving the muscles of your neck and head so that your leg may be moved. Put all your energy into the leg and relax yourself. Now hold it there !" He succeeded in holding the leg in the required position. Then I ordered him to bend the leg on the knee, to straighten the leg, and so forth, applying strong faradism to the flexor and extensor muscles with each order. When movement was well performed, I ordered him to "bend and straighten " the ankle. During this time all movements were satisfactorily performed, the patient still lying on his face. The idea in treating the patient in this position was determined by the fact of the wound being situated in the back. Faradism was therefore frequently applied in the region of the wound.

The patient was soon ordered to walk up and down the ward, but the body was markedly tilted to the left side. I said, " You moved your leg in bed ; you performed every possible movement with good power, but as you walk you imagine you should limp. Straighten yourself, hold your head up, swing your arms and walk normally when I order you." He straightened himself somewhat and began to stagger, holding on to the beds as he passed them. I said to him, " You must walk normally ; I shall

not leave you until you do." The patient was next taken into a large room where it was impossible for him to take hold of objects.

In the exercise room he was ordered to walk in front of a mirror ; at first he paid little attention to it, staggering as he walked. I then said, " Tell me how long you propose to stay here. It depends on yourself. If you wish to stay twelve hours, do not walk normally until that time. But please decide at once ; I must know. Have you forgotten the way in which you moved your leg in bed ? Now when I order you to walk before the mirror I mean that you are to watch yourself so that you may see the nature of your gait and then to correct it." I took hold of his right hand and hurried him up and down the room. He became quite exhausted and I allowed him to walk alone, but when he arrived at the end of the room he stopped until he was ordered to continue. Finally he said, " I can't walk more steadily ; this is punishment." I said, " What do you mean ? Do you mean I am punishing you by restoring your walking ? Is it punishment to be able to go out walking with the other men in the ward, punishment to sit down to dinner with your comrades ? You did not mean that, I am sure." " Oh, no," he said ; " I am very glad that I am now able to walk." He had improved markedly during my last statement ; his head became straight and he began to walk almost normally, and in forty minutes from the commencement of the treatment he walked quite well.

CHAPTER VII

FITS, INVOLUNTARY MOVEMENTS AND DISORDERS OF GAIT

*Illustrative Cases: FINE TREMOR OF THE RIGHT
UPPER LIMB—COARSE TREMOR OF THE
LEFT UPPER LIMB—GENERAL TREMOR
WITH FITS AND STAMMERING—PSEUDO-
ATHETOSIS WITH GENERAL TREMOR AND
MUTISM—PSEUDO-CHOREA—HEAD NOD-
DING—MONOPLAGIC GAIT—PARAPLEGIC
GAIT—BENT BACK GAIT (CAMPTOCORMIA).*

IN this chapter it is my purpose to discuss the common forms of involuntary movements met with in hysteria. These include conditions in which the motor loss is not complete, although the parts affected are rendered more or less useless by involuntary movements of one kind or another.

1. *Tremors* are by far the most common form of involuntary movements observed in hysterical disorders; indeed, a tremor may be considered as always playing a part in every form of hysterical paralysis and manifesting itself either at the onset of the condition or during the process of treatment of the disorder. An example of the latter is demon-

strated in Case A1; the patient here referred to regained his speech in a stammer and lost the stammer after localised tremors had appeared, and the latter did not subside until a series of tremors had occurred.

Hysterical tremors may be localised or general. The former may be described under two headings, viz., fine and coarse. A fine tremor as a rule incapacitates the patient in view of the weakness occurring in the part affected, whereas a coarse one renders the part useless on account of the intensity of such a tremor, the power generally remaining fairly good. Localised tremors more frequently involve the upper limbs, the lower limbs rarely being affected.

A general tremor due to hysteria is usually coarse in character, and as a rule involves the lower more than the upper limbs. Associated with it are tremors of the head, consisting generally of lateral movements, and the patient sometimes stammers. There is nearly always a disorder of gait, and in many a history of hysterical fits may be obtained.

Nearly all tremors due to hysteria are simple, that is, a single muscle group and its antagonists are involved. For example, one form of movement is easily imitated if one rapidly pronates and supinates the forearm. A hysterical tremor, however, cannot be feigned for an indefinite period, although it may be assumed for a short time. Tremors involving several muscle groups with their antagonists producing complex movements are rarely met with.

There is nearly always some form of loss of sensation in these conditions, the anæsthesia being similar to that described in the chapters on monoplegia and paraplegia, *i.e.*, the anæsthesia when observed is limited to the part involved and terminates in a line drawn horizontally round the part or above it.

Tremors of hysteria, like tremors due to organic disease, disappear during sleep. A diagnosis from disseminated sclerosis, exophthalmic goitre, paralysis agitans, general paralysis of the insane, and toxic conditions, etc., will be established by the presence of other signs of organic disease in the latter conditions.

In the treatment of these disorders I have found it always necessary to resort to the use of faradism. When a tremor is associated with some other disorder due to hysteria the former sometimes recovers of itself if the latter has been successfully treated.

The treatment of hysterical tremors will be discussed under the following headings :

I. Localised tremors.

(a) Fine.

(b) Coarse.

II. General tremors.

I. *Localised tremors*.—It has been my plan in treating a fine tremor to administer a very weak faradic current by means of a roller electrode. The patient is ordered to hold out the affected arm in

front of him, and while the roller is being applied to the hand he is commanded to keep the latter still. If the patient does not make satisfactory progress, the current is increased. As a rule, the treatment does not take long.

A coarse tremor may be overcome by the application of faradism by means of a key electrode with a diameter of $1\frac{1}{2}$ in. to 2 in. applied to the axilla, while the patient holds out the affected limb in front of him. If the current is strong enough, contraction of the muscles by faradism will cause the tremor to cease; the strength of current being gradually diminished until it is finally shut off. The patient is then ordered to perform movements, and during this time a roller electrode is rolled up and down the limb and the patient ordered "to keep the limb still," the strength of current again being gradually diminished. The patient should not be left until the tremor has completely disappeared and he is able voluntarily to perform fine movements, such as lifting a pin, or writing, if the tremor is on the right side.

II. A *general tremor* is nearly always associated with a disordered gait. The plan is to treat the gait first, the tremor in other parts subsiding when the gait has become normal. Disorders of gait are discussed in a later part of this chapter.

2. *Pseudo-choreiform movements, pseudo-athetosis, and head nodding* are more or less uncommon manifestations of hysteria. The treatment for

these conditions is similar to that described in the chapter on monoplegia. Anæsthesia is usually found limited to the part involved. Diagnosis from organic conditions which they appear to simulate is not, as a rule, difficult to establish, as involuntary movements due to hysteria can be easily imitated owing to the involvement of a single muscle group. Choreiform movements, athetosis, and head nodding due to organic disease cannot be adequately imitated, as the movement is generally a complex one. Signs of organic disease when present will establish the diagnosis.

3. *Fits*.—The occurrence of hysterical fits in men has never been so pronounced as in the present war. A hysterical fit was considered at one time to occur only or chiefly in females. Hysterical fits rarely occur in individuals who do not suffer from some other disorder due to hysteria; that is to say, the patient may have a stammer, a paraplegia, a disordered gait, or a tremor. Still the possibility of hysterical fits being monosymptomatic ought not to be lost sight of. A fit frequently occurs in patients suffering from rigid paraplegia; the limbs in excitement become more spasmodic and the spasm spreads all over the body; when this occurs the patient is considered to be unconscious. It is doubtful, however, if such patients are unconscious, for the seizures will be accentuated when the patients are held down, and also, when attempts at passively opening the eyes are made, they will close them more tightly. Efforts to open the mouth meet with

resistance, and indeed the body becomes so rigid that attempts at passively moving any part or parts are met with marked resistance on the part of the patients.

Patients suffering from epilepsy are sometimes susceptible to attacks of hysterical fits, and when a history of a fit is obtained from a patient who has no accompanying hysterical manifestation, genuine epilepsy may be looked for.

It is often observed that the epileptic has a desire to get into the Army and objects to being discharged ; he will re-enlist over and over again ; indeed, I have known of one patient discharged from the Army four times for epilepsy who made yet another attempt at enlisting. These patients will often conceal the fact that they are suffering from epilepsy, and many are so plausible and garrulous that their identity may be overlooked by the medical officer at the recruiting station. On the other hand, the patient suffering from hysterical fits often makes every possible effort at getting out of the Army. The general attitude of the epileptic is characteristic : he does not maintain a mental attitude that his disability is such as to incapacitate him for work, whereas the patient suffering from hysterical fits has the idea that he is incapacitated for work. When seeing these patients for the first time, the observer remarks a striking difference in the mental outlook of the two classes. Often if a question is put to the patient, as " What do you complain of ? " the hysterical patient

will instantly reply, " Fits, sir," even though he has a marked stammer or tremor. I asked a man who had been rigidly paraplegic for many months what he complained of, and he said " fits," though he had had no seizure for nearly a month. The epileptic will not answer instantly ; he sometimes tries to shield himself from his malady, hesitates for a time and possibly finally replies that he is an epileptic.

As most of the patients suffering from hysterical disorders are treated shortly after admission, I have not had a good opportunity of studying their behaviour in an air raid. However, two stammerers were admitted to the hospital late one afternoon ; in the evening there was a raid with a heavy barrage. Both patients had a seizure on their way down to the basement after a general tremulous condition of the body had occurred.

Most, not all, of the hysterical fits I have seen in my cases may be described as a generalised tremor of voluntary muscles. It comes on gradually and a tonic stage does not precede the clonic contractions. It increases in strength and with this the respiration becomes quickened, but there is no alteration in the cardio-respiratory rhythm. The attitude of the patient is one of negativism. Supra-orbital pressure or other strong stimulus will as a rule relieve the attack.

It is my plan in treating these cases to suggest a fit to the patient in the presence of a nurse. This is done by using gentle faradism to the forearm, and telling the nurse at the same time to watch the

patient's hand trembling. Trembling of the hand is followed by trembling at the shoulder, and the spasm spreads until the whole body goes into a state of clonus, over which the patient has apparently no control. Very strong faradism is then applied to the cervical region, and the patient is ordered to sit up. The fit can be studied and treated at the same time, and patients treated in this way have not relapsed during their period of stay at the National Hospital. A permanent cure of hysterical fits cannot be guaranteed, as patients may relapse at any time under excitement. When once a patient has learned how to produce such a state, he appears to have no more difficulty in performing such an act when it suits him than he would in coughing or voluntarily stammering.

The following points are characteristic of epilepsy :—

- (a) The *history* will often show that some member of the family suffers from epilepsy.

Such a history is not frequently obtainable from the patient suffering from hysterical fits.

- (b) A *long duration*, existing from infancy, childhood or puberty—in other words, a duration of many years—is the rule in epilepsy.

Patients suffering from hysterical fits do not have a history extending over such a period of time ; it is usually a question of a few months, or “ since I enlisted.”

- (c) An *aura* which when present is definite and precedes the fit by a second or seconds.

The *aura* when present in the hysterical type is not definite, and may precede the attack by many minutes.

- (d) One cry—the so-called “epileptic cry”—at the onset, and when it occurs the patient is unconscious.

In hysteria the patient may cry out before, during, or after the attack, and often becomes very noisy.

- (e) The patient *falls* and may be injured in the fall in epilepsy.

Injury to the patient seldom occurs in hysterical fits unless self-inflicted.

- (f) The nature of the *convulsion* is first a stage of tonic contraction, followed by a stage of clonic contraction.

The distinction between two stages is often imperfect in hysteria, and often, too, there is only a clonic stage.

- (g) The patient is *unconscious* and cannot be roused by supra-orbital pressure or other forms of stimulus.

Patients suffering from hysterical fits may be roused to obey orders if stimulated by supra-orbital pressure, faradism, etc.

- (h) The *eyes* of the patient may be passively opened without difficulty in epilepsy.

Patients suffering from hysterical fits maintain an attitude of general negativism and the eyes are passively opened with difficulty.

- (i) The *eyes* are drawn upwards and to one side during an epileptic seizure, usually the side on which the tonic spasm is more marked. When the clonic spasm occurs the eyes are drawn to the side in jerky movements, the movements becoming gradually less and less marked, and when the clonus ceases the jerky movements also cease.

In hysteria the eyes are drawn up or strongly converge, there are no jerky movements, and the upward movement of the eyes is increased if attempts are made to raise the upper lids passively.

- (j) The *pupils* during an epileptic fit are dilated and may be inactive to light for a time.

The pupils during a hysterical fit may be dilated, but are always active to light.

- (k) An *audience* does not prolong the attack, which lasts only a few minutes.

In hysteria, if the patient has a good audience, the fit may continue for hours.

- (l) The *tongue* is frequently bitten and scars may be seen on the tip or side of it.

The tongue is not as a rule bitten during a hysterical fit. Sometimes, however, the

lips and inside of the cheek may be bitten, and scars are at times shown in these parts.

- (m) There may be no perceptible *pulse* at the commencement of an epileptic seizure.

The pulse is always present and may be more rapid at the beginning of a seizure than at any time in hysteria.

- (n) Usually the lips and face become *cyanosed*.

In a hysterical fit the lips and face are flushed or pale.

- (o) Patients suffering from epilepsy may have seizures during their *sleep* and wake up to find the bed wet and the tongue sore.

A hysterical fit never occurs in sleep.

- (p) There are no *purposive movements*.

Purposive movements, such as biting, tearing the clothes, pulling out the hair, biting the hands and lips, etc., are frequently seen during hysterical outbursts.

- (q) No *sensory* loss can be demonstrated after an epileptic seizure.

There is localised or general diminution to the sensation of pin-prick after a hysterical fit.

- (r) The *reflexes* may show the knee jerks temporarily abolished but soon becoming active. The plantars may show extensor responses which become flexor soon after the attack has ceased.

Reflexes are unaltered in a hysterical fit.

- (s) Incontinence of urine and fæces is of very frequent occurrence.

Incontinence is not a feature of hysterical fits.

- (t) There is no *disordered gait* after an epileptic attack.

The gait is nearly always disordered immediately after a hysterical seizure.

4. *Disorders of Gait*.—A classification of disorders of gait due to hysteria is impossible, unless such gaits be differentiated from all organic conditions in which the walking is affected. The hysterical paraplegic gait is always rigid, and as a rule is due to the patient being allowed to walk before a cure has been effected. All methods of treatment which allow a patient with a rigid condition of the lower limb or limbs to walk should be condemned. Such patients when allowed to walk often develop contractures and even tonic spasms of muscle groups, and indeed it is not difficult to conceive of organic changes in muscles being produced in this way. I have seen patients with their posterior tibial muscles, and particularly the gastrocnemius, standing out markedly in the leg, which, on palpation, felt more like iron than muscle. Often in these cases burning pain occurs, and the treatment presents considerable difficulty in view of this intense burning pain produced on manipulation of the limb.

*Case G1.—FINE TREMOR OF THE RIGHT
UPPER LIMB*

PRIVATE, 24 YEARS OF AGE. DURATION,
4 MONTHS

Previous to his enlistment this patient was a telegraph operator.

While he was on the Somme a shell burst over his trench and he was rendered unconscious for a short time. He was transferred to England shortly afterwards.

On his admission to the National Hospital, the right hand was found to be weak, and the seat of a very fine tremor of fingers and wrist consisting of very rapid pronation-supination movements. The tremor was exaggerated by voluntary movements. The chief disability, however, lay in the weakness of the hand : the patient was unable to hold a cup or use a spoon with it. There was a relative analgesia in the hand extending to a line drawn round the wrist.

After taking the patient to the exercise room, I said to him, "The object of this treatment is to restore feeling to the hand, then to restore the power, and when that is accomplished the tremor will subside." He appeared quite ready for the treatment, and asked, "Shall I be able to return to my former occupation?" After being assured that he would be able to take up his old work again, I made

him lie flat on his back on a couch. At this time the tremor was more pronounced than ever, for with the finger-nose test the condition resembled to some extent the intention tremor of disseminated sclerosis, and he touched his face and neck in an irregular spasmodic way with antagonistic muscles in contraction.

While I was placing the pad electrode over the dorsal spines the patient asked, "How long will this treatment last?" and I replied, "Your occupation is that of telegraphist. You have used your right hand to manipulate your instrument. This fine movement of your hand, which at present incapacitates you, in many respects resembles the movements you were accustomed to perform when operating. But now the movements are involuntary. Possibly you feared that something would happen to your arm to incapacitate you from carrying on your civil employment. When the strain came, your mind must have been centred on that part. The result is your hand is not only weak, but you are subconsciously testing it. Do you not agree that the movement you now perform involuntarily resembles the movement you employ when working on your keyboard?" I continued: "No doubt you understand what I mean; the condition is not due to weakness, but to an idea which has become fixed in your mind. When you realise this, your tremor will disappear." He appeared to be interested, and said he understood exactly what I meant. "But how am I to lose this idea?" he

asked. "By my demonstrating to you that an electrical stimulus is sufficient to overcome the tremor," I replied. "I shall apply electricity, of medium strength at first, gradually diminishing the strength, and finally shutting the current off altogether, and after that you will have full control of the affected member." "How long will the treatment take?" he asked again, and I answered, "Not long in the case of a man of your intellectual capacity, for I believe you understand what I have been saying." He looked rather pleased and made no further remarks.

My first order was, "Put out both hands in front of you quickly"; he instantly obeyed. The tremor became more marked than ever in the right hand; the left hand remained steady. I ordered, "Keep the right arm steady." The extensor group of muscles of the left hand were faradised, so that a good contraction of the muscles was produced. When the electrode was removed, I said, "Such a contraction demonstrates to me that there is a good conduction of nervous impulses to the muscle, but a regular conductivity is not present, that is, the impulses are interrupted. This spasmodic blocking can be easily overcome if a current of electricity is transmitted through my hand to yours. You can see that my hand is steady, and your hand will also be steady in a few minutes." I then clasped my hand in his, telling him at the same time to squeeze mine. His hand-grasp was weak. As I applied faradism to the back of my own hand, he said, "I

feel the electricity coming through from your hand to mine." "That is exactly what I want you to feel," I said. "Now you will be able to keep your hand steady, but continue squeezing my hand harder and harder." I did not allow him to release his grasp until I applied a roller electrode up and down his right forearm, during which time I said, "Squeeze harder, harder," etc. The current was strong at first, but I gradually diminished its strength. If the hand-grasp became weaker when the current was made weaker, I again increased it until the hand-grasp remained strong after the withdrawal of the electrode. Then I said to the patient, "Hold out your arm and separate the fingers"; this he did without the slightest sign of tremor. I then applied the roller electrode up and down his arm, forearm and hand for about two minutes. He was then made to perform various movements, all of which he did regularly and without any involuntary movement.

This case required ten minutes' treatment.

*Case G2.—COARSE TREMOR OF THE LEFT
UPPER LIMB*

PRIVATE, 24 YEARS OF AGE. DURATION,
2 YEARS 10 MONTHS

When this patient was at Ypres with a transport, a shell burst over his head and struck a wall in front of him. He was blown up, he says, "by the vibration." He did not lose consciousness, but

carried on duty that night in spite of a feeling of giddiness. The giddiness gradually increased. A fortnight later, when he was making tea at Bailleux, the left side of the body went into a "spasm," and he dropped the teapot and fell, scalding the left side of his neck. When he got to his feet, he was excited, tremulous, and perspired freely. He walked to the field ambulance dressing station, where the burn was treated. Three days later he returned to the trenches, and on his way there was seized with sharp shooting pains in the inguinal region running up to the left shoulder. The patient was taken back to the field ambulance "shaking all over." Three days afterwards the general shakiness disappeared after a fit, and he was sent to a hospital at Rouen, where the shakiness reappeared. He remained there nine days and had several "hysterical fits." After that he was transferred to a hospital in London, and on his way over developed a tremor of the left arm. Two months later he was discharged from the Army.

On his admission to the National Hospital there was a very coarse tremor of the left upper limb, which was accentuated on the performance of voluntary movement. There were also tic-like movements of the shoulders. Anæsthesia was marked out in the left upper limb to a line drawn round the root of the shoulder. There were no abnormal neurological signs.

After locating the distribution of the pain, I discovered that he entertained delusions of an indecent

nature, but at the time did not allow him to think that I lay any stress whatever upon what he said when he referred to these ideas, but interrupted him by saying, "It is not necessary for you to discuss such subjects with me ; I refuse to listen to you. It is in your tremor that I am interested." The situation of the pain together with the coarse tremor of the left arm indicated clearly enough the existence and nature of the complex, which had been established in the patient during the previous attempts at treatment.

The patient had been hypnotised several times and received other forms of treatment, from which he derived no benefit. He repeatedly told me that he had "received hypnotic suggestion many times."

He made another attempt at speaking. "The other doctors informed me that I was suffering from delusions and therefore I had no confidence in them, as they did not understand my condition." I interrupted him by saying, "Do you want to recover ?"

He began to laugh as he replied, "That is a funny question to ask me." "I do not propose to lose any time with you," I said, "your demeanour aggravates me. You have been apparently spoiled, and when I ask you if you wish to recover I expect you to answer me without comment—'Yes' or 'No.' I am determined to have a reply." He straightened himself in bed : the arm shook more and he began to stammer. He was no doubt surprised at my atti-

tude towards him. "I do not want you to talk," I said; "answer me—'Yes' or 'No.' " He stammered, "Yes, sir." "That will do," I said, "I shall attend to you soon. I shall give you an hour in which to meditate on the reply you have given me. I believe you are honest, and that your reply came from honest lips. There will be no difficulty in curing you; none whatever. You have spoken of these immoral ideas to others; you have enjoyed such conversation, but I shall not listen to such talk."

In an hour I returned to him, and said, "Remember, I shall tolerate no nonsense; none whatever." He did not speak.

Screens were placed round the bed, and a small faradic battery was made ready; during this time I did not speak to the patient. When the roller electrode was ready for use, I said, "Put both arms out in front of you." He instantly obeyed. I then said to him, "The left arm will be as steady as the right in a few minutes." He was apparently interested. A weak current of faradism was applied by means of a roller electrode to the axilla, the patient's arms being meanwhile stretched out in front of him. The tremor at once subsided, although when I removed the electrode the limb began to shake again. I said to him, "Your arm was steady a moment ago; you made that observation yourself; I shall apply a stronger current, and afterwards the steadiness of your arm will be permanent." In less than a minute the tremor had subsided, but returned

slightly when he attempted to touch his nose with the index finger of the left hand. While he was performing movements to order, I applied a weak current up and down the arm for a few minutes, after which all trace of involuntary movement in the arm disappeared. He was very pleased with the result and thanked me. I said, "Your tremor has been cured, but your mind is not yet right."

He came to my room two days later and related indecent incidents which he had witnessed in a hospital previous to his coming to Queen Square. At this he became excited and angry; I listened to him for nearly an hour without interrupting him. Then I said, "You admit you were very ill and nervous when in the former hospital. You say you slept badly, and the fact that such a scene as you claim to have witnessed disturbed you is evidence enough that your mind was not right when you were there. You admit to me that you have been guilty of similar practices to those which you indignantly accuse others of committing, and state that you would see no harm in repeating them. Such a thing is quite inconsistent. You speak of it in a loud voice, when formerly—that is before you became ill—you would have spoken confidentially of such a thing. You have maligned innocent people. The doctor in your hospital told you that you were suffering from delusions." "Delusions," he interrupted; "how could they be delusions? I remember everything that happened; my memory is

clear." "That is quite so," I said, "your memory is good—very good; one may have a fixed idea and yet have no defect of memory. The doctor told you that you were wrong in your belief, and I tell you the same," I continued; "there are patients in asylums, I have seen many of them, whose memory is good, but they have an idea they are some great person, and no matter who tells them they are wrong, they will not believe it, but retain their false ideas. When you were ill in that hospital, you were sleepless; your brain was acting overtime; your mind had not sufficient rest; it was overworked. You confused facts with what you imagined. In other words, you confused something that was false and imagined it to be real. You had not the mental power to separate the evil which came into your mind of its own accord from what you actually saw. In this particular case you believe something to be a reality which was imagination."

"You have pain," I continued; "that pain was much worse at night when you were in that hospital than it is now. The location of the pain would draw your attention to that part of the body. Therefore I believe what you looked for you saw. You did not really see it, but the experience was as real to you as though you did. You have an imagination, have you not?" "Yes, sir," he replied, boastfully, but I interrupted: "Imaginative people like yourself, as a rule, see what they are looking for. You have possibly gone into a cemetery, when you

were a boy," I continued, " expecting to see ghosts, and you saw them. But why? Because you expected to find them there." " Oh!" he said, " but this was not imagination." " I have no more to say to you," I replied. " Think over what I have said and return to me when you have rid yourself of such ideas, but use your judgment and think."

Four days later he returned at noon and asked quietly if he could speak to me. He said, " I want to thank you for curing me. My arm is perfectly steady." Looking down rather bashfully, he continued, " That thing I imagined has gone too. I'll tell you how it was. I had an idea that I was right. It is because you cured my arm that I had confidence in what you said. This morning when I got up I realised my mistake. The pain and the delusion," he said, laughingly, " have gone together. I don't know how I got the idea into my head, but it is gone now." I said to the patient, " It was with reluctance that I listened to your story. I did not interrupt you because I did not want to suggest further similar thoughts into your depraved mind. I do not want you to discuss such subjects again with anybody; do not entertain them in your mind for a moment. When they have no place to lodge, they will make no further effort to gain access. The course of the pain indicated to me the origin of your trouble, and with that confirmed it was necessary to hear your story, and that is the reason I listened to you. You understand, do you not?"

"Yes, sir," he replied, "thoroughly." I have every reason to believe that the whole effect of the treatment was to introduce healthier elements into his mind.

Case G₃.—GENERAL TREMOR WITH FITS AND STAMMERING

PRIVATE, 19 YEARS OF AGE. DURATION,
5 MONTHS

A shell exploded some twenty yards from this patient when he was in the trenches at Arras. He immediately began to tremble, and the following day had three fits. The patient was taken to the C.C.S. and then to a hospital at St. Omer, where he remained a few days until his transfer to Rouen. Subsequently he was sent to England.

Two months after receiving the damage the patient was discharged from the Army.

On his admission to the National Hospital he was very tremulous and stammered. When he was walking the tremor was more marked than when resting; his body shook, the head nodded, and he held himself tense. There was a relative analgesia in the lower limbs to a line drawn round the root of the thigh. Signs of organic nervous disease were not present.

During air raid nights in September and October, 1917, he began to shake more violently than ever and had a series of functional seizures.

One evening I was called to see the patient, who was in a fit ; he was being restrained by two fellow soldiers, and a nurse was holding a tongue depressor in his mouth. He was struggling violently, his head being turned backwards and to the right. His skin was covered with profuse perspiration. The patient was told to sit up, but he paid no attention to the order. Supra-orbital pressure was applied, and he was again ordered to sit up. In less than a minute he sat up, looked dazed, and began to rub his eyes.

I said to him, " Would you like to have your fits cured ? " " Yes, sir," he answered. So I went on, " You will be seized by another fit in a few minutes. I shall bring an attack on by a mild current of electricity and cure it with a very strong current." When the battery was arranged I said, " I shall apply gentle faradism to the sole of your left foot ; your trembling will increase to such an extent that you will have no control whatever over it. In other words, you will have what you call a fit." Faradism was applied by means of a roller electrode, the tremor increased, and his body went into violent clonic spasms. Then I said, " Now I shall cure the fit by the application of a stronger current." I turned on the current full strength and applied it to the front of the neck, telling him at the same time to sit up and stop his shaking. In a minute he was sitting up, but looked dazed. I applied another strong faradic shock to the abdomen, ordering him at the same time to " Look bright." He was still

tremulous, however. "Now," I said, "I shall treat the tremor and the stammer, and when this has been accomplished I want you to walk and also to remember that the fits are permanently cured, you will have no more."

I then placed the pad electrode just below the front of the right knee, and, using a roller electrode, applied gentle faradism up and down the spine, ordering the patient at the same time to keep himself steady. The tremor subsided to a marked extent, but a fine tremor persisted in the fingers. With the arms stretched out in front of him I applied the roller electrode quickly up and down one arm, then the other, ordering, "Keep your arms more still, more still," etc., until the tremors disappeared. The pad electrode during this time was over the dorsal spines.

When the upper limbs were steady I applied faradism in the same way to the lower limbs until movements could be performed without any tremor. By this time the stammering had disappeared. I ordered him to walk and he did so normally. His mental condition completely changed. He remained in the hospital for two months after this, and up to the time of his discharge there was no recurrence of the fits.

The patient received fifteen minutes' treatment.

*Case G4.—PSEUDO-ATHETOSIS WITH GENERAL
TREMOR AND MUTISM*

PRIVATE, 19 YEARS OF AGE. DURATION,
7 MONTHS

The details of this case could not be obtained owing to the fact that the patient had lost his memory subsequent to leaving a training camp at Aldershot. However, from the card accompanying him from France it was ascertained that the condition had been present for about seven months.

On admission to the National Hospital, Queen Square, the patient was mute and shook all over. There were irregular involuntary movements of the hands during attempts at voluntary movement, but the hands were quite steady when at rest. When he attempted to make a fist, the wrists became first overflexed and everted and then slightly extended; the fingers, flexed at the metacarpo-phalangeal articulation, were extended at the other phalanges. There were also irregular abduction and adduction movements of the fingers, and the thumb was irregularly abducted and adducted. The patient had been unable to feed himself previous to the time of treatment here. There was a relative right hemianalgesia together with dullness of the sensation to pin-prick in the left hand, extending to a line drawn round the wrist. There were no signs of organic nervous disease. His mental condition was poor. He appeared to be depressed and very sulky, and would start at sudden noises, during which time

the general tremor would become marked. A history of fits could not be obtained in this case. The patient could not walk on account of the tremor of the legs. All voluntary movements were characterised by a contraction of antagonistic groups of muscles.

The patient was taken to the electrical room in a chair, and when I came in to treat him he became excited. I said to him, "Do you wish to recover?" He made efforts to speak, but the mouth opened and closed in the attempt. So I said, "There is no need for you to attempt to speak; you cannot until you are treated. The loss of voice, however, is not the main disability which exists in your case. Your hands are rendered useless and I consider the loss of power there to be the most important incapacitating feature of your condition. I shall treat the hands, and I want you to place all your attention to the hands. The power will be quickly restored and you will be able to feed yourself. The prospect of being able to use a knife and fork again should create in you a great degree of happiness. I want you to look pleased and show me you are pleased by smiling." He did not smile, however, so I continued, "The hands will be treated almost immediately, but I must first restore the speech, because I shall want you to speak to me. Indeed the voice will be restored in a few seconds." I applied a pharyngeal electrode to the posterior wall of the pharynx and he instantly shouted out.

I told him to say " Ah " and repeat it several times. Then he repeated the days of the week while I mildly faradised the neck. He was speaking normally in less than a minute, looked pleased, and began to express his gratitude.

" Now that the voice is restored," I said, " power to the hands will come back even more quickly than has the speech. I shall restore the power by applying electricity to the nerves of your hand ; the loss of voice, trembling, difficulty in walking and loss of power in the hands are all manifestations of your disorder." He replied, " Yes, I know it is shell shock ; I have been told that before." A roller electrode was applied to the dorsal surface of the forearm, and when the wrist was extended I said, " You see there is excellent power in the wrist ; now you must make a fist tightly." He succeeded with the first attempt and the faradic current was turned off. Clasp ing my hand in his, I said, " Squeeze my hand tightly," and during this time I applied a fairly strong faradic current up and down the forearm, gradually diminishing it until it was finally turned off. In three minutes the power had completely returned. I then tested him by making him lift heavy objects from the floor and by writing. When that was accomplished the left hand was similarly treated and complete power was restored in that member in less than one minute. The patient persistently opened and closed both hands and said, " I shall be able to use my hands now, sir. I have

not had any use of them for seven months." The tremor was much less marked.

The legs were next bared, a pad electrode placed over the dorsal spines and a roller electrode applied up and down the right leg, during which time I ordered him to lift his leg from the couch. Movements were at first associated with contraction of antagonistic groups of muscles, and I said, "Look at your leg; when I tell you to lift it, all the muscles appear to be contracting, and that is why the movement is not regularly performed. You must overcome this by relaxing yourself. If you do not I shall be obliged to employ a very strong current." He succeeded in relaxing and the limb was flexed and extended at the thigh regularly. The left leg was similarly treated and faradism to the lower limbs was applied altogether for about ten minutes.

He was then made to walk and during this time was ordered to talk and open and close his hands. In thirty minutes he returned to his ward, walking and talking normally. The tremor had disappeared, and at the next meal he used both hands for the purpose of feeding himself.

Case G5.—PSEUDO-CHOREA

PRIVATE, 23 YEARS OF AGE. DURATION,
9 MONTHS

It should be stated first of all that this patient had chorea at the age of sixteen years, the duration of which was three months.

He enlisted shortly after war was declared, and served six months in the trenches on the Somme. Towards the end of that time he became nervous and when sleeping would waken with a start. His bed was often found to be wet with perspiration, after dreaming that he was near a mine which was exploding. He reported ill to the medical officer, who instructed him to remain in the camp at rest for a day. The following day he was unable to keep the hands or legs steady, and had an uncontrollable desire to "grunt." He thought he was going to have another attack of chorea, as he had feared this ever since he went into the trenches. A few days later he was sent to a hospital at Étaples, and to England about a week later. He had been treated in several hospitals in England previous to his admission to the National Hospital, some nine months subsequently. In a hospital before coming here he received "electric baths" during a period extending over several months.

On his admission to Queen Square there were tic-like movements of the shoulders and almost continuous clearing of the throat, as though he were attempting to say "Ah" with his lips closed. When he ejaculated this sound, the head would turn in short, sharp jerks to one or the other side. Involuntary movements were present in the hands and arms. The shoulders twitched. He continued to have dreams of "blood" and of being near mines which were about to explode. There was a general

diminution to the sensibility of pin-prick over the body. He was able to walk, but on doing so there were spasmodic movements of the head, shoulder, and arms, and he was unable to overcome the sound produced in the throat, but signs of organic nervous disease could not be found.

The patient was placed in isolation after his admission to the hospital, and remained there for five weeks. He did not improve under this method of treatment.

One night, about nine o'clock, the screens were drawn from the bed ; the patient was asleep and the noise woke him with a start. There was a profuse perspiration over his body, and the bed sheets were almost soaked. I said to him, " You are to be treated to-night." He looked dazed for a time. I asked, " Do you wish to be treated to-night ? " He made an effort to reply, but the constant ejaculation of " Ah " delayed him in saying what he wished. So I said, " I realise that you are tired of your disturbing dreams, and it is not pleasant to be kept in isolation. You will be out of isolation to-morrow, because you will be cured."

He was taken to the electrical room where he watched me with obvious suspicion as I arranged the apparatus, and asked, " Why is it that I cannot prevent myself from making this noise and shaking my head and arms ? " I replied, " You worried for a long time that you would be attacked with chorea, is that not so ? " " Yes," he replied. " It is evident

to you, is it not, that you got what you were looking for? However, there is a great difference between chorea and the condition from which you are now suffering." "Oh," he said, "it is chorea, it is just the same sort of thing I had when I was sixteen." "Are you sure?" I asked. He began to stammer, but I interrupted him, saying, "It makes very little difference to me what you think of your condition; if you had a similar malady five years ago, it was not chorea. I do not want to hear about your views on the subject, but I do want you to be attentive. I shall treat you with electricity until you are cured. When the involuntary sound you are producing has been overcome your whole condition will be cured. There will be no more shaking of the head, no more making silly noises, and no more shaking of your hands." Again he tried to speak, but was unable to on account of the involuntary ejaculation of sounds mingled with a stammer.

The pad electrode was placed over the dorsal spines, during which time his whole condition became markedly accentuated. "Now," I said, "I want you to prolong the sound 'Ah' while I apply electricity to your neck." I then administered fairly strong faradism by means of a key electrode to the neck over the larynx and kept saying to him, "Say 'Ah'; prolong the sound; do not allow any interruption in the sound you produce until I remove the electrode." The electrode remained on the neck over the larynx for two seconds

at first, and was gradually increased, second by second, until he was able to produce the sound for fifteen seconds if the electrode was left on the neck that length of time. This required about ten minutes' treatment, as the method was recommenced every time he failed in his attempt. Then I ordered him to repeat the alphabet, days of the week, etc. At times he became stubborn, but this was corrected by my increasing the strength of the current, and also by not permitting him to speak. In thirty minutes involuntary sounds had disappeared and he was talking normally. He returned to his ward. The next morning when I saw him he was quite normal and said he dreamt that he was having electrical treatment in the trenches. He had not perspired, however. The following night he did not dream, and as far as I know the dreams have disappeared.

Case G6.—HEAD NODDING

GUNNER, 22 YEARS OF AGE. DURATION,
10 MONTHS

At the time the head nodding began this man was a patient in a military hospital in London. He was out walking one afternoon, and when stepping from a kerb about to cross a road he was nearly struck by a car. The driver called out to him and he stepped back just in time to escape injury. He was dazed for a few seconds, but was able to return to the

hospital alone. During the same night involuntary head nodding commenced.

It should be stated that previous to his coming to England he was wounded in the neck in France, and when he arrived in London there was only a very slight linear scar about half an inch long just below theinion. He was transferred from one hospital to another in England, and had been discharged from the Army more than a year on account of "nervousness." He had a horror of air raids. For a long time he had been subject to dreams, which always took the form of someone cutting his throat.

On his admission to the National Hospital there was a continuous nodding movement of the head—about eighty per minute—which ceased during sleep. The patient also stammered. There was anæsthesia of the head and neck as far down as a line drawn round the level of the second rib. The right side of the trunk and right leg were also anæsthetic. There were no signs of organic nervous disease.

When the patient was admitted he was placed in isolation, and remained there for about a month, and although cautioned against pulling the curtains back, did so whenever he had an opportunity. He was often found talking to the patient in the bed next to him. Going abruptly to him when he was talking to a patient, whom he had been previously warned not to talk to, I said, "I want to treat you

to-day. You must stop that head-nodding habit ; you do not appear to object to it." I did not wait to hear what he intended to say, although he began to stammer. He was taken to the electrical room, and I arranged a faradic battery in order : the electrode was placed over the sacral spines and the chest of the patient bared. I then examined him again, and found the same right hemianæsthesia in the face, neck, and trunk as far down as the second rib. When I had demonstrated this to him I said, " Such a loss of feeling is a very good sign—it will be restored rapidly. When you begin to feel more in the right side, recovery will begin." " I have already been given electricity in other hospitals," he said, and I replied, " It makes no difference to me what form of treatment you have received ; if you were given electricity it was applied to the wrong part of the body. Your loss of feeling on the right side would indicate that to me. Now do not resist." He said, " I am afraid of electricity." " So am I," I said, " but not at all afraid of its power to stop your head from nodding, and that is what you want, is it not ? I know you want to recover." " Yes," he said, " I have decided that I want to be cured." " You require proper treatment ; now that you are going to receive proper treatment you are happy about it, are you not ? " He made no reply.

I then applied a gentle faradic current by means of a roller electrode up and down the right side of the

chest, telling him at the same time to keep his head still. This, however, met with no satisfactory response. I then ordered him to make every effort to hold the head back, but again the order was not carried out to a successful issue. I then said to him, "You will require a much stronger current. The strength of the current will be increased from time to time." Very strong faradism was then applied over the upper part of the left trapezius area and he was ordered to hold the head back. His whole body went quite flaccid and his head fell apparently lifeless to the right side; his eyes were closed. To use a popular term, he had fainted. I said, "That is splendid; your head is still, but open your eyes." A mirror was held before him, but he took no notice of it. He was given only a second in which to look at himself, but still his eyes remained closed. Then I applied the same current to the left side of the chest. He immediately recovered, and his head began to nod again more violently than at any previous time. I said, "Your nodding ceased a few minutes ago. How often must I repeat this application? The current must be applied again." I applied the same strength of current over the upper fibres of the trapezius, and ordered him, "Keep the head back. I shall continue to apply the current until you show some improvement," and continued, "Are you ready to demonstrate to me that you have better control of the movement of your head?" The electrode was

removed from his neck as the nodding had ceased to a marked extent. He was then made to pace up and down the room and urged at the same time to hold his head erect, but as soon as he began to walk the nodding manifested itself again in very fine anterior-posterior movements.

The patient was then re-educated to talk, and at the same time urged to walk with his head thrown back. Finally, the stammering had to be overcome by means of a pharyngeal electrode applied to the neck over the larynx while he was walking. On its recovering, the movements of his head improved. The improvement gradually progressed, although slight nodding persisted. I said, "The nodding has disappeared, the voice has been cured. You may return to your ward." He put his shirt on, and when he had buttoned it I said, "The nodding has returned, you are still nodding slightly; take off your shirt again, and I shall further treat you. Remember, you must not leave me until you have been cured." I then made him walk up and down the electrical room. There was no improvement, however. I then fastened a pad electrode on his sacrum, and applied faradism by means of a wire brush to the left arm, urging him all the time to keep the head still. I walked with him while I was applying the current. When the faradism was discontinued, I ordered him to walk up and down the room alone. There was still a slight tremor of the head. As he was walking, I ordered him to perform

all movements of the head, but still the tremor persisted. I said, "The nodding has all gone; you must be tired. Put on your shirt and coat and return to your ward." He appeared quite happy at such a prospect, and hurriedly put on his shirt and coat. When he was about to leave the room I said, "That is too bad, the slightest nodding has returned. Remove your shirt and coat. There must be no nodding; you must not leave me until you have recovered." He returned, but it was not long before the tremor completely vanished. His mental condition changed.

After ninety minutes' continuous treatment he could talk and walk normally, and there was no involuntary movement of the head. He remained in the hospital for a fortnight, and up to that time there was no recurrence of dreams relating to his throat.

Case G7.—MONOPLEGIC GAIT

PRIVATE, 18 YEARS OF AGE DURATION,
9 MONTHS

This patient had just left a dug-out near Camières when a shell exploded where he had been standing less than five minutes previously. He instantly fell on his face to protect himself, but remembered nothing until he found himself in his medical officer's dug-out. He was sent to a hospital in Camières, where he became sleepless and tremulous and terrified by sounds. A week later he was trans-

ferred to England and in another week's time contracted enteric fever.

On his admission to the National Hospital there was very little, if any, tremor, and he was able to walk without support, but when he walked his heel was raised from the floor in short, sharp spasms, and he entertained difficulty in bringing the right limb forward on account of an extensor spasm of the hip. All movements could be performed in bed by the patient, but when he made an effort to raise the limb from the bed a spasm developed which was quickly overcome after the leg had been lifted a foot or so from the bed. The right limb was analgesic, as also was the right side of the abdomen, to a level extending as far as the umbilicus. Reflexes were normal and there were no signs of organic disease.

I said to him, "Your condition is curable. Most of the disorder from which you have been suffering has disappeared; you do not tremble as much as you did several months ago. The only difficulty you experience is in walking. When you attempt to go forward there is a group of muscles at the back of your leg which contracts and prevents forward movement. When I was examining your left leg to see if there was any feeling in it I used a pin, and if you remember as soon as I thrust the pin into your flesh the leg drew quickly back. On the other hand, when I thrust the pin into your right leg you did not object to it and the leg was not drawn away. I shall explain this to you." Con-

tinuing, I said, "Your left leg reacted normally to the stimulus; your right leg did not. Therefore your defect lies in the failure of the left leg to respond to normal stimuli. It responds in another way, which is that the normal forward movement of the left leg sets up a stimulus which contracts the muscles drawing your leg backwards, and the result is your leg has not a fair chance to move forward because it has to overcome the muscles which draw it backwards. The muscles drawing your leg back of course should be relaxed when you wish to move your leg forward. Electricity will produce relaxation of the muscles on the back of your thigh; it will overcome the defective reaction to stimuli. Do you understand what I mean?" "Yes, sir," he said, "I think I do," apparently confused. "But how long will the treatment take?" he asked. I replied, "Of course that depends to a large extent upon your understanding of what I have just been telling you; if there is anything you do not understand about it, please ask me." He began to demonstrate to me that he understood. "That is splendid," I said; "the rapidity of the cure really depends upon the degree of your intelligence, and I am expecting a speedy cure in your case."

Faradism was then applied up and down the posterior surface of the right thigh and leg for a minute, although the spasm persisted when he began to move the limb. I said to him rather

abruptly, "Flex your right thigh; flex it, flex it." He became confused at such an order, so I said, "Bend your thigh quickly. I expected you to understand, nevertheless you will do so very soon." I then faradised the limb just below the middle of Poupart's ligament and ordered, "Lift up the leg quickly"; he instantly obeyed. After this he was made to perform voluntary movements until the antagonistic contractions had disappeared.

Re-education to walk was then undertaken. He was hurried along and from the commencement was warned to bring the heel down on the floor first. The limp was overcome by ordering the patient to make no more noise when bringing down one foot than the other.

In forty-five minutes he returned to his ward walking without defect.

Case G8.—PARAPLEGIC GAIT

PRIVATE, 32 YEARS OF AGE. DURATION,
2 MONTHS

When this patient was near Bullecourt with a trench mortar party, a trench mortar shell burst near him. He remembered seeing a flash and felt as though he was rising through the air. Although he was buried to the neck in earth, he did not lose consciousness and succeeded in digging himself out. With the assistance of a comrade he made his way to billets two miles behind the lines, and when he

reached there he became unconscious and remembered nothing more until he woke to find himself in a dressing station stuttering and "trembling all over." The following day he was sent to a casualty clearing station, and while there walked normally. He was transferred to a hospital in Rouen, and when he arrived there could not stand. The hands began to "shake" and he was unable to feed himself. In a week's time the hands became normal again. There was a dead feeling in the legs and a "weighing down" pain in the occipital region.

Five weeks after the explosion he was sent to a general hospital in England. While there he could stand if supported by someone, but could only get along by short, jerky hops. One night he dropped off to sleep, and when he wakened a nurse was helping him back to bed. He had walked across the room himself, but could not return to bed without support when he was awake. During that sleep he says he went through all his past experiences at the front.

The next morning he could walk with support, but only in short, jerky hops. His head seemed to him to be turning round and the floor appeared to come up to meet him.

The numbness of the legs had disappeared to give place to a dull aching pain from the groin and also in all joints of the legs.

On admission to the National Hospital he was quite depressed, tremulous and stammered. There

was weakness of both legs and an anæsthesia from the middle of the thighs downwards. There was also loss of sense of position in the lower limbs. He could not walk without support, and when attempting to do so brought his legs down in short, jerky, forceful steps. He swayed to and fro and it was difficult to prevent his falling over. There were no signs of organic nervous disease.

A faradic battery was employed and a strong current applied up and down the legs by means of a roller electrode. The current was gradually increased until it reached its maximum intensity. In less than five minutes the feeling had completely returned, and it was found that the joint sense had also returned.

To "strengthen" the legs a wire brush was made to take the place of the roller electrode and applied to the quadriceps extensor group of muscles as he was told to raise the limbs higher and higher. This was persisted in for ten minutes, during which time he was persuaded to move the legs. Then he was dressed and made to walk. He was first supported with one hand. The alteration in walking consisted mostly of swaying right and left, but after walking up and down the ward a dozen times he could walk without support. He was encouraged to hold up his head, walk straight, and lift his legs as he walked.

In half an hour he was walking normally, the tremor had subsided, and the untreated stammer had recovered itself.

Case Gg.—CAMPTOCORMIA

PRIVATE, 22 YEARS OF AGE. DURATION,
4 MONTHS

A shell exploded close to this patient just as he was preparing to go over the top with a bombing party at Loos. Part of the trench fell in and he was buried by earth, his head alone escaping. For two or three days afterwards he was in a dazed condition, although he had a faint recollection of what had happened. Six weeks later he was sent to England; at first he was treated in a hospital at Eastbourne, where he was given "physical exercises." He says he gradually became worse after these exercises and that his back was more bent and rigid.

On his admission to the National Hospital the trunk of the patient was rigidly bent forward and the head drawn back. When he walked the trunk was flexed at right angles with the thighs and he supported himself by grasping the anterior surfaces of the thighs with his hands. His body was tilted slightly to the right and the head bent backwards. It was impossible to straighten the trunk passively. When he was sitting down the patient's trunk was bent so that the chest touched the thighs, and the hands would clench the outer surfaces of the legs. He could not eat from a table. When in bed he would curl himself up, lying on one or the other side—usually the left side, when he would face the wall.

He complained of throbbing pain all over the head, which was much worse at night, and when he awoke he would see colours dancing in front of his eyes. There was a relative right hemianalgesia. He was emotionally depressed ; memory was fairly good. The feet perspired freely and a scratch would leave a pink blush for a long time. There was tenderness from the sixth dorsal spinal process to the lumbar region. There were no signs of organic nervous disease.

He was taken to the exercise room, where I attempted to assure him that recovery would take place. It was difficult to make any impression on him, for when I talked to him he would not reply to my questions. In the course of ten minutes I said to the patient, " It is evident that you understand the principles of this treatment, for you do not answer my questions. You will be rapidly cured in view of that. I shall begin by making your back straight. This will be done by the administration of electricity to your spine and back. You have power to raise your head ; indeed you even extend it normally. You have pain in your back, and that I am sure has indicated to you long ago that the pain is due to the position you assume. The muscles are put on too great a stretch and there is no relief for you, because even when you rest the same position is maintained. The electricity may be strong, but it will be the means of restoring your lost powers—the power to straighten your back."

He then began to ask me if the electricity was painful, but I instantly interrupted him, saying, "I realise that you did not intend to ask me such a question and I shall overlook it. When I began to treat you I was aware of the fact that you understood the principles, which are: *Attention* first and foremost: *tongue*, last and least: *questions*, never."

The back of the patient was bared and he was made to lie on his face on a massage couch. It was necessary to place him in that position, and the only way he was able to maintain it was by holding firmly with his hands to the side of the couch. The position was an awkward one; the knees were flexed on the couch at right angles with the trunk, the chin was down and the head thrown back. Before applying faradism, I said to him, "You must lie flat on the couch before I shall allow you to walk." A pad electrode was next placed over the sacrum and a roller electrode rolled up and down the length of the spine. While doing this I moved the patient's arms to his side, so there was no other support for him except the trunk and knees. "Straighten out and lie down flat," I said to him. However, the support was more in the knees. So as I rolled the electrode up and down I passively extended the knees so that their support would be overcome. With the thigh at a more obtuse angle with the trunk it was more difficult for him to support himself. I continued with the electrode, urging him to straighten himself more and more, and at the same time pressing down

his back towards the couch. In fifteen minutes the knees and abdomen were flat on the bed. I then said, "You are almost completely relaxed; that is splendid, your back is now straight." He made no reply, but looked very gloomy, so I continued, "It is obvious you are very well pleased with the result; any man would be just as happy as you are who was to be cured from such an affection. Now I am going to bend your head backwards and so your spine will be arched forwards." I then faradised the buttocks, placing the pad electrode over the dorsal spines. When this was done I ordered him to extend the thighs and then told him to raise up the back, keeping the lower part of the abdomen on the bed. At first it was necessary for me to press firmly with one hand over the buttocks, but it was not long before he was able to raise himself in this manner. Then I commanded him to lie flat on his back while he performed movements to order.

He was afterwards made to walk. The back was only slightly bent, and as he walked up and down I urged him, "Straighten your back more, keep your shoulders back and the chin forward." The rigidity was overcome, but he stooped somewhat still. Again he was taken back to the couch and faradism applied to the legs. When he returned to walk he did so normally. This case required two hours' continuous treatment.

CHAPTER VIII

HYSTERICAL DISORDERS ASSOCIATED WITH ORGANIC DISEASE

Illustrations:—MONOPLÉGIA OF THE UPPER LIMB—LEFT HEMIPLEGIA—PARAPLEGIA WITH BLEPHAROSPASM, DIMINISHED VISION, AND CONJUNCTIVITIS—PARAPLEGIA.

HYSTERIA associated with organic disease involves so large a subject that it would be impossible to discuss fully the manifestations included in such a combination. Therefore I have attempted only to make suggestions which may be of value in the recognition of the more curable element, viz., the hysterical side of it. I purposely repeat a portion of what has been said in previous chapters with regard to differential diagnosis, considering such a repetition advisable if it serves to emphasise the fact that the presence of a few organic signs does not necessarily indicate permanent disability. The hysterical element may be removed and the patient restored to usefulness. For instances, reference may be made for a moment to Cases H₃ and H₄.

Frequently some form of hysterical disorder

accompanies organic disease ; indeed the hysterical element may be so marked that it may entirely obscure, clinically, the existence of organic structural change. Sometimes the significance of organic manifestations is not observed until the functional part of the disorder has been cleared up. It would appear that an organic lesion acts as an exciting factor in the production of a hysterical disorder. I have chosen cases in previous chapters to illustrate the occurrence of a wound at the beginning of the disturbance which appeared to act as an exciting cause in the production of the particular form of paralysis. Examples of this have been seen in the following :—hysterical mutism, with a history of a wound in the tongue ; hysterical blepharospasm with amblyopia, with a history of a wound in the upper part of the face ; hysterical monoplegia, with a wound in the limb affected ; hysterical paraplegia, with a wound in the region of the spine. Further, an illustration has been given of a functional disorder of the lower limb coincident with an organic lesion in the homolateral arm. None of these functional conditions, whether manifested in the part injured or in another part, was associated with any signs of organic disease, and all eventually cleared up completely.

But loss of power due to organic disease may have superadded to it loss of power due to hysteria, and in such cases it is necessary to discriminate the false from the true. The questions may be asked, How

much return of power is one to expect in conditions where hysteria and organic disease are thus associated, and how are the two conditions to be separated so that a prognosis may be given? I should give as an answer to the first question that the hysterical element may be considered to be overcome when the negativistic element underlying the functional disturbance has been counteracted. Clinical evidences of negativism are manifested in

- (a) The mental state of the patient.
- (b) The physical state of the patient shown by contraction of antagonistic groups of muscles.

In the diagnosis of neurological conditions it is generally the rule to eliminate the existence of organic disease by various neurological tests. But it frequently happens that in patients suffering from organic lesion it is not enough to decide that the condition is due to hysteria in the absence of organic signs, even when careful tests indicate no structural change. Clinical signs of hysteria are unique and definite, and it is essential that the significance of these signs should always be considered. The outstanding feature of a hysterical disorder is the contraction of groups of muscles which should be relaxed during the performance of certain movements. For example, a patient in whom no signs of organic disease can be demonstrated and in whom there is weakness of the legs may be presented

for examination. When the limbs are moved by the patient, it is observed that the movements are weak, but there is no spasmodic contraction of antagonistic groups of muscles. In such a case the patient should not be treated as hysterical; it is imperative that he be observed frequently, for it may be only after a series of examinations that signs of organic disease may be discovered. Weakness of a part not associated with involuntary spasmodic contraction of antagonistic muscles rarely occurs in loss of power due to hysteria. It must be remembered also that organic signs in themselves are of little value unless the pathological change producing them is understood.

The more common forms of hysterical disorder associated with organic disease will be discussed under the following headings :—

1. Hysterical monoplegia of the upper limb associated with organic disease.
2. Hysterical monoplegia of the lower limb associated with organic disease.
3. Hysterical paraplegia associated with organic disease.
4. Hysterical hemiplegia associated with organic disease.

1. Hysterical monoplegia of the upper limb may be associated with any nerve lesion, the more common of which are

(A) Musculo-spiral paralysis.

(B) Lesion of the fifth cervical nerve.

(A) Musculo-spiral paralysis may be (a) part of a complete paralysis of the wrist, fingers and thumb ; or (b) part of a complete monoplegia of the limb.

(a) Musculo-spiral paralysis associated with complete loss of power of the wrist, fingers and thumb presents the following features :—

Motor System.—No voluntary movement whatever occurs in the wrist, fingers or thumb. The patient can flex the forearm, but is unable to extend it, and when the arms of the patient are held out in front of him so that the unaffected wrist is allowed to fall loosely, the angles formed at the anterior surfaces of the wrists are unequal. Wasting, if present, occurs only in the triceps, supinator longus, and extensors of the wrist, fingers and thumb. The electrical reactions may show R.D. in muscles supplied by the musculo-spiral nerve. Loss of flexion of the wrist, fingers and thumb in such a case will point to hysteria.

Sensory System.—Anæsthesia may be of the radial distribution and together with it there may be some loss of sensation over the hand to a line drawn round the wrist or above it.

Reflexes.—The supinator jerk and triceps jerk may be abolished, but the biceps and pronator jerks are retained.

(b) Musculo-spiral paralysis associated with complete loss of power of the upper limb.

Motor System.—No voluntary movement occurs in the wrist, fingers and thumb. The patient may

be persuaded to perform movements at the shoulder, but when the movement is performed it is associated with contraction of antagonistic groups of muscles. Wasting, when present, is found in the musculo-spiral muscular supply. The electrical reactions will also show R.D. over muscles supplied by the musculo-spiral nerve.

Sensory System.—Anæsthesia will extend all over the limb to a line drawn round the root of the shoulder, but anæsthesia will be more marked over the radial distribution.

Reflexes.—The supinator and triceps jerks may be abolished; the biceps and pronator jerks being retained.

(B) Lesion of the fifth cervical nerve associated with functional monoplegia of the upper limb.

Nearly always some fibres of the sixth cervical nerve are also damaged. The true paralysis in this condition consists of loss of movement at the shoulder with the exception of elevation. Flexion of the elbow is lost owing to the nerve lesion. Power of elevation of the shoulder, extension of the elbow, and all movements of the wrist, fingers and thumb are lost owing to the functional disturbance. The patient may be made by persuasion to perform elevation at the shoulder, extension of the forearm, and all movements of the wrist, fingers and thumb. Movements of the wrist, fingers and thumb are associated with contraction of antagonistic groups of muscles. The muscles supplied by the fifth

cervical nerve are : serratus magnus, pectoralis major (clavicular), supraspinatus, infraspinatus, subscapularis, teres minor, deltoid, biceps, brachialis anticus and supinator longus (most of these muscles have an additional supply from the sixth cervical nerve also). Wasting and electrical reaction of degeneration will be found in these muscles.

Sensory System.—Anæsthesia may extend all over the arm to a line drawn round the root of the shoulder, but the sensory loss is more marked over the outer side of the arm.

Reflexes.—The scapulo-humeral and biceps reflexes will be abolished. All other reflexes will be retained.

2. Hysterical monoplegia of the lower limb may be associated with

(A) External popliteal lesion.

(B) Sciatic lesion. *

(A) External popliteal paralysis may be a part of

(a) Monoplegia of the foot.

(b) Monoplegia of the lower limb.

(a) External popliteal paralysis, associated with complete loss of power of the foot, presents the following features :—

Motor.—Speaking generally, there is no power in the ankle or toes, but the patient may be persuaded to perform movements of flexion of the foot and toes. If the feet are allowed to fall at rest at the end of the bed, they do not assume the same position, the angles

on the two sides being unequal. Wasting may occur in the anterior tibial and peroneal muscles, and the electrical reaction of degeneration may also be present in muscles supplied by the external popliteal nerve.

Sensory System.—Anæsthesia may occur in the foot limited to a line drawn round the ankle or above it, but it is more marked over the outer side of the leg and dorsum of the foot, leaving out all the toes, with the exception of a small area on the dorsal surface of the great and second toes. The plantar surface of the foot and dorsal surfaces of the three outer toes will show a relative analgesia.

Reflexes.—There will be no alteration in the reflexes.

(b) External popliteal paralysis associated with loss of power of the lower limb presents the following features :—

Motor.—Power of extension of the foot will be entirely gone. The patient may be urged to perform movements of flexion of the foot. Movements of the knee and hip when performed are associated with spasmodic contraction of antagonistic groups of muscles. As the nerve which supplies the peronei, tibialis anticus and extensors of the toes is affected, these muscles may show wasting and R.D.

Sensory System.—Loss of sensation may extend to a line drawn round the root of the thigh. The sensory loss, however, will be more marked over the cutaneous supply of the external popliteal nerve.

Reflexes.—There will be no alteration in reflexes.

(B) Sciatic paralysis associated with monoplegia of the lower limb presents the following features :—

Motor System.—All muscles below the knee are paralysed and therefore no movement of the ankle or toes is possible. If the lesion is very high the hamstrings will be paralysed. The patient, however, may be made to perform movements at the hip, and on the performance of these movements there will be contraction of antagonistic groups of muscles. Some flexion at the knee may be expected owing to the flexor action of the unparalysed gracilis muscle.

There may be wasting and electrical reaction of degeneration in the muscles of the leg, and if the lesion is high enough the hamstrings may be similarly affected.

Sensory System.—There may be sensory loss in the limb, limited to a line drawn round the root of the thigh. Anæsthesia, however, will be more marked in the leg and foot with the exception of the inner surface of the leg.

Reflexes.—The ankle jerk will be lost and there will be no plantar response. The knee jerk will remain unaltered.

3. Hysterical paraplegia may be associated with organic disease. Paraplegia due to organic disease may be caused by so many conditions either in the spinal cord or brain or in the peripheral nerves themselves that it would be impossible to discuss them

fully here. In organic paraplegia there is consistence in the action of the motor-sensory-reflex mechanism. Inconsistence in the clinical manifestations indicates an associated hysterical element. Some of the signs which may be observed in paraplegia due to lesion of the spinal cord combined with functional loss of power may be given.

The important points to consider in each type (flaccid and rigid) are

- (a) The nature of the motor loss.
- (b) The nature of the sensory loss.
- (c) The condition of the reflexes.
- (d) The condition of the sphincters.

1. Flaccid paraplegia in which there are organic and hysterical signs.

(a) *Motor System*.—A complete paralysis is to be expected. Not infrequently the recovery from such flaccid paraplegia begins in the proximal part of the limb. If some power is observed in the voluntary movements of the feet and toes, the following test is made: The patient is ordered to perform extension of the foot, during which time the observer's palm is placed over the calf muscles. If the posterior tibial muscles are felt to contract under the palm, then an associated loss of function due to hysteria is probable. A similar test is applied to the antagonists of all movements.

Toneless muscles are to be expected in flaccid paraplegia of organic origin. If the tone of the muscles is good, an element of hysteria is to be expected.

Wasting generally occurs in organic flaccid paraplegia, and if the loss of power is equally distributed an equal distribution of wasting generally accompanies it. Loss of power not accompanied by wasting will indicate a hysterical element.

Electrical reactions in organic flaccid paraplegia are R.D.; usually the reaction to degeneration is more marked below the knees. If there is no disturbance of tone, no wasting, and the faradic excitability is good, an element of hysteria is most probable.

(b) *Sensory System*.—In complete flaccid paraplegia no pain is, as a rule, complained of; the occurrence of pain in the limbs indicates a hysterical element. (The condition of anæsthesia dolorosa is so rare in this connection that it may be ignored in these cases.)

An area over which sensibility to pin-prick and heat and cold is lost is also one in which faradism is not felt. Inconsistence points to a mixed disorder.

If anæsthesia does not correspond to a segmental distribution, but is limited in the limbs to a line drawn round the knees or roots of the thighs, and there are other signs indicating organic disease, an associated hysterical element is to be expected.

(c) *Reflexes*.—In organic flaccid paraplegia the reflexes are abolished below the level of the lesion. If reflexes can be obtained, then the paralysis is not complete. The return of reflexes in cases of com-

plete lesion of the cord is not an uncommon occurrence, but with their return they are of the pyramidal type and spasticity is almost invariably associated. If, however, in a condition of complete flaccid paraplegia the reflexes are not entirely abolished, this suggests that some of the weakness is functional.

(d) *Sphincters*.—In organic flaccid paraplegia there is some disturbance of the sphincters. A complete flaccid paraplegia of the lower limbs in which there is no loss of sphincter control may not be altogether organic, yet complete organic flaccid paraplegia with intact sphincters is a possible combination.

2. Spastic paraplegia in which there are organic and hysterical signs.

(a) *Motor System*.—Loss of power is not absolute. If there is complete loss of power hysteria is probably associated. If in such cases contraction of antagonistic groups of muscles can be demonstrated, hysteria may be considered to accompany the disorder.

In spastic paraplegia, wasting is not a common feature, and in it the electrical reactions are usually normal. Sometimes faradic excitability is increased.

(b) *Sensory System*.—The distribution of the sensory loss will not, as a rule, aid in differentiating or separating the organic from the functional, as there may be (1) normal sensation throughout; (2) diminished sensibility; (3) complete anæsthesia. If complete anæsthesia to pin-prick and heat and

cold is claimed by the patient, there should also be no appreciation of faradic excitability. Such inconsistency will indicate an associated hysterical element. If, again, with this complete anæsthesia claimed by the patient there is appreciation of deep pressure pain, then some of the sensory loss is probably functional.

(c) *Reflexes*.—The reflexes are of the pyramidal type in spastic paraplegia. It is obvious that the reflexes must speak either for organic disease or for functional disorder, and cannot be expected to show two things at once.

(d) *Sphincters*.—Loss of sphincter control usually indicates organic disease, but its absence does not indicate whether the condition is organic or hysterical.

4. Functional hemiplegia associated with organic disease. As hemiplegia most commonly results from a lesion of the brain, early cases which indicate any structural damage should not be treated on the principles I have laid down for the treatment of hysteria. Such patients should be carefully watched for a long period of time, in spite of the possibility of there being an associated hysterical element. It is my practice to wait until the evidence suggests that all organic change is at a standstill before proceeding to undertake to treat the patient for his functional disturbance. The majority of these patients recover from the hysterical element after the administration of massage and faradism.

The term hemiplegia applies to any form of unilateral weakness, whether motor or sensory. The motor weakness may be limited to slight asymmetry of the face associated with an extensor plantar response, which is sometimes difficult to elicit, while the weakness of the limbs may be so little marked that it may be unobserved. Again, there may be complete loss of power, or loss of power and sensation, or there may be loss of sensation only.

The occurrence of spasmodic contraction of the antagonists will if present in these cases indicate a hysterical element.

In the following illustrations the hysterical element will be found in italics.

Case H.—MONOPLEGIA OF THE UPPER LIMB

PRIVATE, 29 YEARS OF AGE. DURATION,
6 WEEKS

This patient was wounded by shrapnel while he was in the trenches at Ypres. He remembered nothing of what occurred until an orderly awakened him at a hospital at Poperinghe, where the patient was told that he had been "off his head." When he came to himself he was unable to move the left upper limb and the neck felt stiff. He had diplopia and the sight was gone in the left eye, over which there was a feeling of tightness. The patient was sent to a hospital at Étaples and later

transferred to Newcastle. Six weeks after the injury he was admitted to the National Hospital complaining of vertigo, shooting pain from the left side of the head to the neck, together with a feeling of stiffness in the left side of the face, more particularly over the malar region. There was retention of urine.

Evidences of three wounds were observed in healthy scars, viz. :—

(a) Entry : A scar, 1·5 cm. long, running horizontally, was situated at the most external part of the left supra-orbital ridge. Exit : A scar, the size of a small pea, was situated 1 cm. to the left and 1·5 cm. above the left angle of the mouth.

(b) A scar, 5 cm. long, was situated 4 cm. to the left of inion and extended downwards and to the right towards the mid-line (the tissues in this neighbourhood were thickened).

(c) A scar, 5 cm. long, extended transversely outwards from the inion.

SPECIAL SENSES.—The acuity of vision was R. $\frac{6}{9}$, L. $\frac{6}{36}$; the edges of both discs were clearly seen. The left pupil was much larger than the right, the former not reacting to direct or consensual illumination, nor to accommodation. There was nystagmus to right and left together with diplopia, the left external rectus being somewhat weak.

MOTOR SYSTEM.—Head and Neck.—*The head was drawn forward with chin tilted to the right, the left ear being on a lower plane than the right. When the*

patient was requested to perform movements to order there was an attitude of negativism, expressed in the closing of the eyes and wrinkling of the face. The muscles of the neck were tense, and all movements, which were markedly limited, were associated with a contraction of antagonistic groups of muscles.

There was winging of the left scapula.

Left upper limb, shoulder.—Elevation and depression.—*There were slight movements associated with spasmodic contractions of antagonistic muscles.*

Flexion.—*No movement was performed.*

Extension.—*No movement was performed.*

Abduction.—*No movement was performed.*

Adduction.—*No movement was performed.*

Elbow.—Flexion.—*No movement was performed.*

Extension.—*No movement was performed.*

Wrist.—*No movement was performed.*

Fingers.—*There were very slight spasmodic movements due to the contraction of the antagonists.*

Wasting occurred in the following muscles: serratus magnus, supraspinatus, infraspinatus, clavicular part of the pectoralis major, deltoid, biceps, brachialis anticus and supinator longus.

Electrical reactions showed R.D. or partial R.D. in above muscles.

SENSORY SYSTEM.—There was complete loss of sensation to cotton wool, pin-prick, heat and cold over the outside of the arm "shield shape," and also over the outer portion of the forearm and hand, including the thumb, index finger, and part of the

middle finger, and *dullness to sensation of pin-prick in the rest of the upper limb to a line extending round the root of the shoulder.*

REFLEXES.—The scapulo-humeral reflex, biceps jerk and supinator jerk were absent on the left side.

The following movements returned after the administration of faradism : elevation and depression of the shoulder, some flexion and extension of the shoulder, extension at the elbow, and all movements of the wrist, fingers and thumb.

Movements of the head and neck returned after faradism and massage.

That the loss of power of the triceps and of movements of flexion and extension of the wrist was not due to any nerve lesion was confirmed at a subsequent operation on the patient for nerve suture. The fifth and sixth cervical nerves were found to be divided close to their intervertebral foramina. Faradic stimulation of the seventh cervical nerve produced extension of the forearm and wrist.

Case H2.—LEFT HEMIPLEGIA

PENSIONER, 32 YEARS OF AGE. DURATION,
1 YEAR

The patient, a deck hand on a mine-sweeper, suddenly fell down unconscious one morning and was taken to a naval hospital in England. The accompanying note from that hospital follows :—

“ On admission he was comatose, incontinent, and had a left flaccid hemiplegia, not involving the face. He recovered consciousness in a few days' time. The condition soon improved, and before long he was walking about almost normally. Some months later, he had another attack of coma, and when he became conscious there was a right hemiplegia not involving the face. From that time he was observed to have frequent attacks of unconsciousness, with facial twitchings which lasted only for a few minutes. He complained of intense headache. There was no evidence of optic neuritis. The temperature at times would reach 108° and once 109° (mouth), but has always been a degree or two lower in the axilla. I am certain of the accuracy of these temperatures.”

On admission to the National Hospital, the patient gave the following history, which was confirmed by the ship's captain. The patient said he was on a mine-sweeper, the weather was foggy, and the boat struck a mine. He was not hit, but fell down the ship's hold, a distance of 8 feet, and lost consciousness. He regained consciousness sixteen days later in a hospital in England, and for a fortnight was blind. Frontal headaches had been severe for three months. He complained of the left eye feeling as though it were turned inside out, and a “drawn” feeling of the left side of the lower jaw. “Dreams,” he said, “keep me awake at night.” He was constantly dreaming that the ship was striking a mine.

CRANIAL NERVES.—Acuity of vision was $\frac{6}{9}$ R. and L. There was no limitation of the visual fields, and the optic discs were normal. The pupils were equal and reacted to direct and consensual illumination and also to accommodation. Action of eye muscles was good.

MOTOR SYSTEM.—There was left hemiplegia. The left upper limb was spastic, the elbow drawn slightly out from the side of the trunk, and the forearm flexed and drawn across the chest in a pronated position, the fingers being slightly flexed. *All attempts at movement were associated with spasmodic movements of the limb; the head was turned to the opposite side, and the patient did not look at the limb as he was attempting to perform movements, but cried out in apparent distress when the limb was passively moved, and also when he attempted to perform movements voluntarily.* The whole limb was much thinner than the fellow of the opposite side, and there was definite wasting of the biceps and triceps muscles of the left side.

The left lower limb was almost useless, it being rotated inward, so that the ball of the great toe almost touched the bed when the patient was lying on his back. *On his attempting to sit up the heel was pressed firmly against the bed. The limb was rigid, and efforts at voluntary movement met with contraction of antagonistic groups of muscles.* The left lower limb throughout was smaller than the right. No free voluntary movements were performed. The electrical reactions throughout were normal.

SENSORY SYSTEM.—Subjective. The patient complained of *pains throughout the left side when attempting to perform movements.*

Objective.—There was loss of *C.W. over the left side of the face limited to a line drawn round the level of the left malar bone ; in the left forearm to a line drawn round the elbow ; and in the left lower limb as far as a line drawn round the root of the thigh.*

Pin-prick.—*He could not discriminate the point of the pin (on the left side) from the level of the clavicle downwards.*

Heat and cold *were not appreciated throughout the left side of the body.*

Sense of position and passive movements were lost in the great toes only.

Deep pressure sense was retained.

REFLEXES.—The left carpo-metacarpal reflex was very active, and there was an indefinite left extensor response.

GAIT.—Patient *was bedridden.*

Wassermann was negative in blood and C.S. fluid.

The patient was treated by faradism and in thirty minutes walked with a slightly hemiplegic gait. The return of power to the upper limb was not so good, although the patient could use the left hand fairly well after treatment.

*Case H₃. — PARAPLEGIA, BLEPHAROSPASM,
DIMINISHED VISION AND CONJUNCTIVITIS*

TROOPER, 24 YEARS OF AGE. DURATION,
6 MONTHS

The patient joined the Army at the outbreak of war, and was trained at the barracks at Regent's Park. After he had been there three weeks he fell from a horse when at the riding school, and broke the fifth and sixth ribs on the left side. He was treated in the hospital for a month, and for another month did light duty. Three months after he had returned to ordinary duty he contracted influenza and a "cold in the left eye," and subsequently iritis in both eyes. He recovered from influenza after being in the hospital eight weeks. The trouble with the eyes persisted, and he attended an ophthalmic hospital in London every morning. He was taken off all duty. The patient went before several Boards during the time he was attending various ophthalmic hospitals: altogether he was in hospital for about twenty-nine months.

Six months previous to coming to the National Hospital he contracted diphtheria and was treated in Regent's Park Hospital, and remained in hospital fourteen days. He came out on three weeks' leave, walking normally, and was supposed to "report for duty in three weeks." Three days after he reported "pins and needles" began in bottom of feet and gradually worked up to the head

He "went giddy," and walked better if nobody noticed him, but when spoken to he would "walk all over the place and then fall down." The patient was then sent to two different hospitals in London and afterwards transferred to the National Hospital.

CRANIAL NERVES.—Acuity of vision was R. $\frac{6}{24}$, L. $\frac{6}{24}$. *The fields were somewhat contracted* and the discs clear. There was considerable conjunctivitis with *blepharospasm*. The patient wore green glasses. All evidence of iritis had disappeared. There was a slight lateral nystagmus but no other cranial nerve defect.

MOTOR SYSTEM.—*No movements whatever could be performed at the hips, knees, ankles or toes.* There was no wasting, and the electrical reactions were normal. Motor system in other parts was good.

SENSORY SYSTEM.—Subjective.—The patient complained of a feeling of "pins and needles" from the knees to the toes, together with considerable tenderness over the calf muscles.

Objective.—*There was complete loss of sensibility to pin-prick, heat and cold, and cotton wool to the knees, together with loss of joint sense in the ankles and toes.*

REFLEXES.—The reflexes were normal with the exception of the ankle jerks, which could not be obtained.

SPHINCTERS.—No disturbance of sphincters.

The treatment was similar to that already described in the chapter on paraplegia. Movement first

returned with violent spasms of the legs, and the patient maintained a negativistic attitude throughout the treatment. When this was overcome he was made to walk. He walked in half an hour without support, but lifted the feet rather high to overcome the tendency of the feet to drop. When the spasmodic movements had entirely disappeared he walked almost normally.

The treatment for conjunctivitis lasted over a period of one month, and after the inflammation had disappeared the eyes were treated by faradism, the method employed being similar to that already described in Case C2. The vision returned to $\frac{6}{8}$ in each eye, and the blepharospasm disappeared after a few minutes' faradisation.

Case H4.—PARAPLEGIA

PENSIONER, 31 YEARS OF AGE. DURATION,
15 MONTHS

When the patient was on his way to —— with a ration party, a shell burst near him. Some of his front teeth were knocked out by shell fragments. The limber of a wagon struck him in the back over the dorsal region, and he fell unconscious. There was, however, an interval of a few seconds between the time he was injured in the back and his becoming unconscious. He was taken to a dressing station. When he awoke he was in a hospital in ——; the lower limbs were powerless, and there was severe pain in the lumbar region, with a feeling of “dead-

ness" in the lower limbs. There was also incontinence of urine. He was sent to England, where he received treatment in various hospitals. The back was X-rayed, but no defect could be found. Some time later he was discharged from the Army.

The patient walked when admitted to Queen Square, and was able to get about with crutches. There was no feeling in the right leg, which was useless, and only slight feeling in the left, in which there was some power. The hands were tremulous. "I get the wind up me very quickly during air raids," he said.

A physical examination showed the following signs :—

CRANIAL NERVES.—Acuity of vision was R. $\frac{6}{12}$, L. $\frac{6}{9}$. The fields were normal and there was a slight myopia, the disc being clearly seen with -1.5 D. to -2 D. The right pupil, which was irregular, was slightly larger than the left. The pupils reacted very sluggishly to light, but reacted well to accommodation. There was slight lateral nystagmus to right and left, and some weakness of the right external rectus (the patient gave a history of diplopia of three weeks' duration). No defect could be found on examining the other cranial nerves.

MOTOR SYSTEM.—*There was a rigid paraplegia of the lower limbs with slight movements at all joints, power being better in the left than in the right limb. All movements were associated with contraction of antagonistic muscles. Movements in other parts of*

the body were good, although there was slight inco-ordination of the upper limbs shown in the finger-nose test.

SENSORY SYSTEM.—Objective.—*There was loss of sensation to cotton wool, pin-prick, heat and cold, extending throughout the right lower limb and over the trunk to two inches below the umbilicus, and in the left foot to a line drawn round the ankle.*

There was complete loss of sense of position and the appreciation of passive movements in the right lower limb, and diminished in the left lower limb.

There was loss of vibration sense on the right side from below the anterior superior spine of the ilium, and no loss of vibration sense on the left side.

Deep pressure sense was retained throughout.

REFLEXES were normal throughout.

SPHINCTERS.—There was incontinence of urine.

The blood showed a positive Wassermann reaction.

In spite of a former claim of the patient that he could not feel the faradic current, he recognised weak strengths of faradism. He was treated as a functional paraplegia, and he walked without defect after thirty minutes' treatment.

CHAPTER IX

MALINGERING

THE important subject of malingering has been discussed exhaustively in recent publications which deal exclusively with the problem. In my experience simulation of disease has been exceptionally rare in view of the fact of such cases being recognised early and immediately dealt with, so that their admission to neurological hospitals has been more or less obviated. However, some of the allied evils which act as an exciting factor in the production of malingering are constantly brought to the attention of all who are prepared to observe their occurrence.

Many have argued that the various forms of disorder due to hysteria are simply manifestations of malingering, but those who have had an opportunity of making observations on the subjects involved doubtless incline to the view that in hysteria definite clinical signs are manifested, whereas in malingering a similarity in the clinical presentation of groups of cases is lacking. I have attempted in the previous chapters to demonstrate the existence of a clinical characteristic which I believe to be interwoven in all cases of hysterical disorders and observed in the

contraction of antagonistic groups of muscles.¹ This sign is seen in each case either when the patient is first presented for examination, or during the process of treatment when return of function is being established. It is useful in discriminating between disorders of hysterical origin and malingering. Although a diagnosis of conditions in which objective signs are manifested is not a difficult problem, those conditions in which subjective symptoms are the predominating characteristics are not only difficult but sometimes impossible to diagnose.

Malingering is sometimes seen in conscripts presenting themselves at recruiting stations. It is the rule that some previous injury has been to them sufficient evidence on which to base their claim for the disability they assume. The simulation of any form of paralysis may be met with, and some have shown themselves to be apt scholars in assuming such conditions as an ulnar, median, or musculo-spiral paralysis. One or other of the upper limbs seems to be the part most frequently resorted to by this type of individual. A careful examination will readily establish a diagnosis, as an objective form of paralysis cannot be otherwise than badly imitated. The best method to adopt in the treatment of such cases is to lead the patient to believe that his condition is interesting although not at all understood.

¹ Dr. Charles E. Beevor when discussing the action of the antagonists in his Croonian Lectures (1903) said: "The condition of the antagonists acting before the principal movers begin, I have never seen in any other condition besides those of so-called hysterical or functional paralysis. I therefore venture to think that it is a diagnostic symptom of this condition."

The supposed sufferer will then be more free to discuss his condition, and he can be led to believe that he understands more about his case than does the one to whom he has come for advice. He can be further led to do most of the talking, and during the explanation of his own case he soon falls into a trap of his own making, for no matter how excellent a malingerer he may be, he condemns himself when he is taken off his guard. During the treatment he should not be made to believe his condition is understood, nor that malingering is suspected. If the patient should have some knowledge of the sensory supply of certain parts, it is best to stimulate by strong faradism the part in which loss of feeling is claimed. The supposed difficult features of the case may hinge on one claim only, and if this claim is fully established by the malingerer, and the latter is insistent in his claim, that point alone is dealt with, but the reason for dealing in such a manner is not made known to the patient.

As an example of this, I shall quote the case of a young Hebrew, 22 years of age, who had been "called up" for military service shortly after the Military Service Act had been passed. This man was sent to the hospital with a note from a recruiting officer asking if anything could be done for the man's hand. Accompanying him was a young wife, who appeared to be more sympathetic with the husband than seemed genuine. When he approached me, he removed the official note from a pocket on the right side of his top coat, using the left hand to

perform this act. The man complained that he was unable to use the fingers of the right hand because of scar tissue in the palm, which resulted from a burn sustained three years previously, and which produced a contraction of the flexor tendons of the fingers. The fingers were firmly flexed on the palm, so that the nails were pressed into the palm. With difficulty the fingers were passively extended, but the man complained of severe pain when this movement was carried out, and it was observed that his claim to the presence of scar tissue was a false one. In spite of his statement that the fingers had not been released from the flexed position for three years, the nails were well manicured.

He stated that his occupation required the carrying of boxes ; this he was capable of doing, as the wrist was strong, and such manual labour was not detrimental to his carrying on his work. The patient was asked if he had any feeling in the arm, he replied that there was no feeling whatever anywhere in the arm, and demonstrated quite cheerfully this fact by thrusting his teeth deeply into the skin over the biceps muscle, leaving a mark.

A test of the sensory loss by pin-prick indicated that the anæsthesia claimed by the patient was not genuine. He became confused, limiting the anæsthesia to an irregular line extending to portions of the neck and chest, and not corresponding with either usual functional or organic distribution, so that it was impossible to chart the results on a similar area

on two consecutive examinations. However, he persisted in his attempts to impress me with the idea that there was intense loss of feeling by repeatedly thrusting his teeth into the skin over various portions of the arm, calling for my attention at the same time as he demonstrated the anæsthesia. Finally, I asked him if he were certain there was no feeling, and again he endeavoured to assure me of the genuineness of his assertion. On being asked what form of treatment he had been given, he said he received the burn when he was in New York, and while there he consulted fifty doctors, who, he said, could do nothing for him. When I asked him why he expected such a condition to be cured when there was no feeling in the arm, he appeared pleased, and added that three doctors had treated him with electricity while he was in London, but he could not feel the current. I told him that nothing could be done to cure such a condition, if he were sure he had completely lost feeling in the arm, and that I did not understand such a condition, as it was the first of the kind I had seen, and knew nothing about it. He was informed that it would be of scientific interest to study the electrical reactions of the muscles of his arm, on the assumption that he could not feel electricity, and further that in view of such a fact he would receive no benefit, although I might receive some, and that such a procedure would be impossible to undertake in a limb possessed of feeling, as the current was very strong.

He was taken to the electrical room, where a strong faradic current was applied by means of a wire brush to the bend of the elbow. Standing with my back to him and holding the arm firmly, I told him that I was going to spend four hours with him, during which time the current would be from time to time increased. When I applied the current I further assured him that his condition was most interesting, it being obvious that he felt the current. In less than one minute he made an effort to draw his arm away. I removed the electrode, at the same time asking him if he felt the current. He answered that he did not feel it. Taking another firm hold of his right arm and increasing the strength of the current to the full, he almost instantly shouted out, "You have beaten me ; you have beaten me ; I'll give in to you," as he began to use the hand normally. He admitted that he had been shamming.

Malingering may be seen in soldiers who have been in the Army for some time, and who attempt to evade further military service on the pretext of some wound, which is sometimes self-inflicted. Such cases are rarely met with, but the following illustration of a private, 22 years of age, who enlisted in February, 1915, will serve as an example.

The man was sent to France in the following December. A few months later he was sent to Salonika. In January, 1916, both feet, he said, were frost-bitten. He had a faint recollection of a bullet wound in the right ankle, but no scar could be

found to establish this claim. The patient was taken to a hospital in Salonika, and the lower limbs became paralysed on his arrival there. He was transferred to Malta, and remained in a hospital there for three months. Then he was transferred to England and treated in hospitals at Portsmouth and Bournemouth. In the latter place he underwent an operation for appendicitis early in January, 1917.

The patient was carried into the National Hospital on a stretcher in the middle of February, and when put to bed looked very ill, and had to be assisted when turning in bed. The appendix scar was healed, and there were no signs of organic or functional disease. Movements of the legs were very slightly performed, and there was no accompanying contraction of antagonistic groups of muscles.

I made no comment to the man, but when the examination was finished I took him unawares by seizing his arms quickly, and, hurrying him to the floor, I ran along the ward with him. Before he had realised what I was doing he had taken a dozen or more steps. Then he became very resistive, and made an attempt to fall, but I cautioned him against this, reminding him that he had already walked a dozen steps, and that it was too late to carry on with his old method. After that he walked quite normally round the ward. He was soon discharged from the hospital. The man later paid a visit to the hospital, but only came to see me, and

avoided returning to his ward. Although I had not mentioned malingering to him, or indicated what I thought of his condition except as stated above, he reproached me with the fact that I considered him to be a malingerer, and attempted to assure me that he was not shamming. Further, he said that it would do him a great deal of harm if anybody were informed that such was suspected of him. I had nothing whatever to say to him.

Hysteria sometimes predisposes to malingering, particularly when the hysterical disorder has extended over a long period of time. This is not to be wondered at, in view of the manner in which hysterical patients are treated. I have had at my disposal only the accounts given by the patients themselves, and if I have been informed falsely my view point is erroneous.

Long clinics on hysterical patients should be discouraged, unless the clinician is prepared to terminate his lecture by directing his efforts in channels which lead to the immediate restoration of the patient. These patients listen attentively to what is said of their case, and my records indicate that they receive impressions which are not by any means helpful to those who are interested in their treatment. The display of sympathy rendered by some nurses and visitors so inclined creates in the patient a mind which is anything but discontented. In such a way the hysteric lying in bed for weeks, months, or even years develops the habits of an

invalid, from which he has no anxiety to release himself. As he lies in bed without improvement, he cannot help but believe that the condition is one which cannot be cured. But does he not also think, when he sees the seriously injured coming into the wards of the various hospitals to which he has been admitted, to say nothing of the deaths which he may have witnessed, that he is better off than many? He therefore has a tendency to cling to his disorder, and after he has been cured may feign the symptoms of the disorder from which he has recovered.

An example of this is seen in the case of a sapper, 24 years of age, who enlisted in May, 1915. After seven months' training in England he contracted typhoid fever, which ran a mild course.

When he recovered from the infection and it was time for him to sit up in bed, his lower limbs were found to be paraplegic and his back stiff. He complained of severe pains in the lumbar region, and the legs could be moved only in short, sharp spasms. Flexion at the hips, knees and ankles could not be performed passively. A number of X-rays of the dorso-lumbar region were taken, one of them reading "lower part of dorsal vertebræ still appears blurred and indistinct: intervertebral discs patent." The condition was diagnosed as typhoid spine.

After lying in bed for twenty-four months, he was admitted to the National Hospital, and the condition diagnosed as hysterical rigid paraplegia. He com-

plained of aching pain in the lumbar region and knees. The patient was unable to sit up in bed voluntarily, nor could he be placed in a sitting position on account of the rigidity of the spine. When he was asked if he would be happy if he were cured in thirty minutes, he answered to the effect that it would be impossible for him to recover in such a short time ; 110 doctors had seen him, and all agreed that he had " typhoid spine." He also said that he overheard one doctor remark that it would be ten years before he would be able to walk again. To another question he replied that he would not like to recover quickly, although he had no objection to improving a little every day. He further said that he was contented to let things go as they were, and would much prefer returning home to being restored so quickly. He argued that if he were cured he would be capable of carrying on civil work ; if he were fit for civil life, the authorities would consider him to be also fit for military duty. No doubt the man's brightest prospect was to remain in hospital until the war ended, and he realised that recovery would terminate such prospects. He had refused his discharge several times, fearing that it would necessitate his giving up the idle life to which he had become accustomed.

Although after thirty minutes' treatment he was walking normally, he feared the outlook, and went so far as to say that if he were given military work again he would immediately relapse. What he

wanted was to be discharged from the Army and given a full pension, and to be kept in the hospital until he thought he was in a fit condition to leave.

Finally, I wish to refer to the type of man who seeks shelter in the Army, realising that he suffers from a disease which will prevent him from proceeding into dangerous war zones. He will conceal his bad history, and although at many recruiting stations he will be considered to be unsuitable as a soldier, his persistence will finally result in his accomplishing his objective. Possibly the life in hospitals appeals to him, and that is as much as he can expect, for he must realise that the nature of his complaint will be brought to light before he proceeds far in his training. When once he has been accepted for military service, all his wants are supplied, and if when the time comes for him to be discharged he does not receive a pension, he will re-enlist over and over again. Evidence as a proof of this fact is not lacking, and instances could be quoted where men have been discharged two, three and four times, the interval between the discharge and re-enlistment being periods of a month or less.

As an example of the patient who is insistent that the Army will care for him, I shall quote the case of a private, 29 years of age, who had been subject to epileptic seizures since the age of eight years.

At the age of nine years he was sent to an asylum in England, and a year later he was taken to Canada under the charge of a large religious organisation.

Shortly after his arrival in Canada, he suffered from a series of epileptic seizures, and was removed to a general hospital and later to a provincial hospital for the insane. He remained in the latter institution for two years, and when he was discharged he procured employment on a farm, but was soon obliged to leave on account of frequent epileptic seizures. The unfortunate fellow would no sooner become established in one home than he would have to leave it, and so he was more or less hurried from one place to another. At the age of 19 years he was poisoned by canned beef in a volunteer training camp in Ontario, and the seizures became more frequent. He then began to tramp throughout the country, sometimes securing work, but he was improperly fed and clothed. At the age of 24 years, after having a series of seizures, he found himself in gaol on a charge of attempted suicide. After his release he was sent to an epileptic hospital for six months, and on his discharge experienced the same difficulty in securing employment.

After war broke out the man made ten attempts at enlisting; the tenth time he was accepted. He reached France, but was there only a few days when he was sent to a hospital, and he has been in a number of hospitals in France and England ever since, and testifies to the excellent treatment which has been accorded to him.

INDEX

A

- Accommodation, spasm of, 52, 57.
 - ill case, 64.
 - treatment of, 57.
- Anæsthesia—
 - in aphonia, 5.
 - in deafness, 34.
 - in monoplegia, 76.
 - in mutism, 5.
 - mastoid, 34.
 - pharyngeal, 5.
 - in stammering, 5.
 - in visual disorders, 55.
- Antagonists, action of, 237.
 - in disorders of speech, 74.
 - in hystero-organic, 215.
 - in monoplegia, 73, 74.
 - in paraplegia, 116.
- Aphonia, 2, 4.
 - diagnosis of, 5.
 - illustrative case, 23.

B

- Bezold Edelmann forks, 3.
- Bjerrum screen, 55.
- Blepharospasm, 52, 56.
 - faradism in, 57.
 - illustrative cases, 60, 232.
 - treatment of, 57.
- Blindness—
 - bilateral, 52.
 - diagnosis of, 52.
 - faradism in, 53.
 - illustrative cases, 58, 60.
 - supra-orbital pressure, 54.
 - treatment of, 53.
 - uniocular, 53.
- Blindness with blepharospasm—
 - illustrative cases, 60, 232.
- Brachial plexus, 79.

HYSTERICAL DISORDERS.

C

- Caloric tests, 36.
- Camptocormia, 208.
- Canda equina, 83.
- Ciliary muscles, spasmodic contraction of, 57.

D

- Deafness, 31.
 - (See also Deaf-mutism and Disorders of hearing.)
 - anæsthesia in, 34.
 - binaural, 31, 35.
 - diagnosis, 32, 34.
 - illustrative case, 35.
 - malingering in, 31.
 - re-education in, 34.
 - treatment of, 31, 32, 34, 35.
- Deaf-mutism, 1, 31, 43, 48.
 - (See also Deafness and Disorders of hearing.)
 - diagnosis of, 32, 34.
 - faradism, use of, in, 32.
 - illustrative cases, 39, 43, 48.
 - intracranial disease producing, 35.
 - treatment of, 31, 32, 33.
- Deaf-mutism with hemiplegia, 31.
 - illustrative case, 43.
- Deaf-mutism with paraplegia, 31.
 - illustrative case, 48.

E

- Edelmann forks, 36.
- Edelmann whistle, 36.
- Eustachian catheter, 33, 36.
- Epilepsy, 170—176.

F

- Faradism, application of in—
 deafness, 32.
 disorders of speech, 4.
 disorders of vision, 53, 54,
 56,
 hemiplegia, 156.
 involuntary movements, 167.
 malingering, 239.
 monoplegia, 75.
 paraplegia, 116.
 (See also illustrative cases.)
- Fits, 169.
 (See also Involuntary move-
 ments.)
 diagnosis from epilepsy, 170,
 172, 176.
 illustrative cases, 139, 187.
- Foot drop—
 diagnosis from organic disease,
 81.
 illustrative cases, 101 104.

G

- Gait, disorders of, 117, 176.
 (See also involuntary move-
 ments.)
 illustrative cases, 202, 205,
 208.
 pain in, 176.
 treatment of, 209.
- Galvanic test 33.

H

- Head nodding, 168.
 illustrative case, 197.
- Head drop—
 illustrative case, 97.
- Hearing, disorders of, 31.
 anæsthesia in, 34.
 diagnosis of, 32, 34
- Edelmann forks, use of in, 33,
 36.
- Edelmann whistle, use of in, 36.
- eustachian catheter, use of in,
 36.
- faradism, use of, in, 32, 33.
 illustrative cases—
 deafness, 35.
 deaf mutism, 39.
 with hemiplegia, 43.
 with paraplegia, 48.

Hearing (*continued*)—

- intracranial disease, producing,
 35.
 re-education, in, 34.
 sleep—disappearance of in, 34.
 suggestive measures in, 33.
 treatment of, 31.
- Hemianæsthesia—
 occurrence of in hemiplegia,
 155.
 occurrence of in mutism, 5.
 occurrence of in visual dis-
 orders, 55.
- Hemiplegia, 155.
 with deaf-mutism, 31.
 diagnosis, 157.
 hemianæsthesia in, 155.
 hystero-organic, 215.
 illustrative cases, 18, 43, 160,
 228.
 with disorders of speech, 1.
 treatment of, 156.
- Hystero-organic, 212.
 hemiplegia, 224.
 illustrative cases—
 hemiplegia, 228.
 monoplegia, 225.
 paraplegia, 232.
 paraplegia, blepharospasm,
 etc., 234.
 monoplegia, 215, 217, 218.
 paraplegia, 220.

I

- Involuntary movements, 165.
 fits, 169.
 gait, disorders of, 176.
 illustrative cases—
 camptocormia, 208.
 coarse tremors, 180.
 fine tremors, 177.
 general tremors with fits and
 stammering, 187.
 head nodding, p. 197.
 monoplegia gait, 202.
 paraplegia gait, 205
 pseudo-athetosis, with general
 tremor and mutism, 190.
 pseudo-chorea, 193.
 pseudo-athetosis, 168.
 pseudo-chorea, 168.
 tremors, 165.

L

- Larynx—
 - tuberculosis of, 6.
- Lumbo-sacral plexus, 83.

M

- Malingering, 237.
 - illustrative cases—
 - monoplegia, 239.
 - paraplegia, 115, 243, 244.
 - in blindness, 53.
 - in deafness, 31.
 - in epilepsy, 247.
 - in hysteria, 244.
 - treatment of, 239.
 - use of faradism in, 239.
- Monochord, 33, 36.
- Monoplegia, 72.
 - anæsthesia in, 76.
 - antagonists in, 73, 74.
 - complete, 72.
 - differential diagnosis—
 - canda equina, 84.
 - external popliteal, 82.
 - hemisection of cord, 84.
 - lumbo-sacral plexus, 83.
 - musculo-spiral, 79.
 - sciatic, 81.
 - distribution of paralysis, 73.
 - flaccid, 73.
 - faradism in, 74, 77.
 - hystero-organic, 215.
 - illustrative cases—
 - flaccid of arm, 92.
 - “ foot drop, 101.
 - “ monoplegia of leg, 108.
 - “ wrist drop, 84.
 - rigid monoplegia of arm with
 - head drop, 97.
 - “ foot drop, 104.
 - “ of leg, 112.
 - “ wrist drop, 89.
 - incidence of paralysis, 72.
 - incomplete, 72.
 - rigid, 73.
 - treatment of, 74, 77.
- Mutism, 1.
 - (See also Disorders of speech.)
 - anæsthesia in, 5.
 - diagnosis, 5.

N

- Nerves—
 - brachial plexus, 79.
 - cervical (fifth), 73, 217.

Nerves (*continued*)—

- musculo-spiral, 77, 177.
- popliteal external, 82, 218.
- sciatic, 81, 218.

P

- Paraplegia, 115.
 - antagonists in, 116.
 - deaf-mutism, 31, 116.
 - diagnosis of, 116, 119, 120, 122.
 - with fits, 139.
 - faradism in, 118.
 - flaccid, 114, 116, 117.
 - illustrative cases—
 - flaccid paraplegia, 126.
 - flaccid paraplegia after an injury, 131.
 - flaccid paraplegia with fits, 139.
 - rigid paraplegia, 143.
 - rigid paraplegia with hyperæsthesia, 147.
 - rigid paraplegia of upper and lower limbs, 151.
 - rigid paraplegia with general clonus, 151.
 - in hystero-organic, 215.
 - in malingering, 114.
 - rigid, 114, 116, 122.
 - in disorders of speech, 1.
 - treatment of, 117.
- Perichondritis, 6.
- Perimeter, 55.
- Popliteal N., 82, 218.
- Pseudo-athetosis, 168.
- illustrative case, 190.
- Psychopathic condition—
 - associated with disorder of speech, 6.

R

- Rotation tests, 36.

S

- Sciatic nerve, 81, 218.
- Speech, disorders of, 1.
 - adductor paralysis in, 6.
 - anæsthesia in, 5.
 - antagonists in, 74.
 - aphonia, 2.
 - diagnosis, 5.

Speech, disorders of (*continued*)—

- early cases, 3.
 - faradism in, 4.
 - hemianæsthesia in, 5.
 - illustrative cases—
 - aphonia, 23.
 - mutism, 7.
 - mutisin with hemiplegia, 18.
 - mutism with paraplegia, 20.
 - mutism with trembling, 15.
 - stammering, 24.
 - intracranial lesions producing, 7.
 - laryngeal examination, 6.
 - laryngeal tuberculosis, producing, 7.
 - mental state, after treatment, 5.
 - mutism, 1.
 - palatal reflexes in, 5.
 - in psychopathic condition, 6.
 - stammering, 2.
 - syphilitic perichondritis, producing, 7.
 - treatment, 2, 3, 4, 5.
 - variation of, 2.
 - vocal cords in, 6.
- Stammering, 4.
- anæsthesia, 5.
 - diagnosis, 7.
 - illustrative cases, 24, 187.

T

Tone analysis—

- loss of in deafness, 33, 34.

Tremors, 165.

- anæsthesia in, 167.
- coarse, 166.
- diagnosis of, 167.

Tremors (*continued*)—

- fine, 166.
- general, 166.
- illustrative cases—
 - coarse, 177.
 - fine, 180.
 - general, 15, 187, 193.
 - localised, 166.
- treatment of, 167.

V

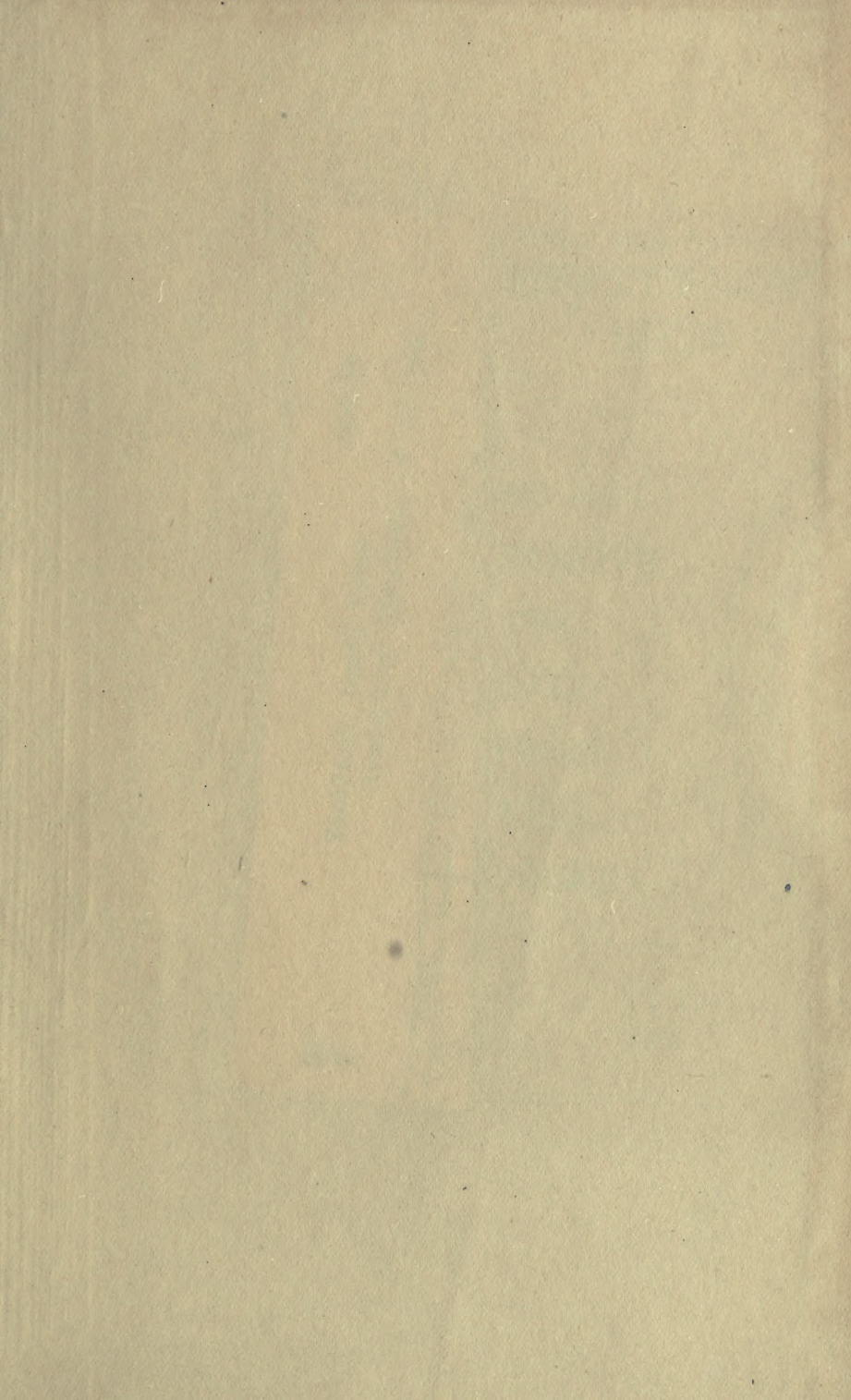
Vision, disorders of, 52.

- acuity, disturbance of, 52.
 - blepharospasm, 52, 56.
 - diagnosis, 53, 54.
 - fields, disturbance of, 52, 54.
 - hemianæsthesia in, 55.
 - illustrative cases—
 - blindness, 58.
 - blindness with blepharospasm, 60.
 - spasm of accommodation, 57, 64.
 - treatment of, 53 to 57.
- Vocal cords—
- adductor paralysis of, 6.
 - condition in disorders of speech, 6.
 - in laryngeal tuberculosis, 7.
 - in syphilitic perichondritis, 6.

W

Wrist drop—

- diagnosis, 77.
- illustrative cases—
 - flaccid, 84.
 - rigid, 89.



MN
Y

600038
Yealland, Lewis Ralph
Hysterical disorders of warfare.

UNIVERSITY OF TORONTO
LIBRARY

DO NOT
REMOVE
THE
CARD
FROM
THIS
POCKET



